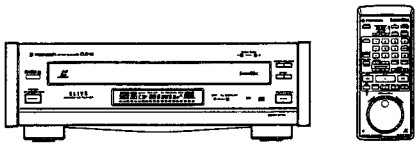
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2252

CD CDV LD PLAYER

CLD-95

- **This manual is applicable to the KU/CA and SD types.**
- **As to the SD type, refer to page 123.**

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 9120 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

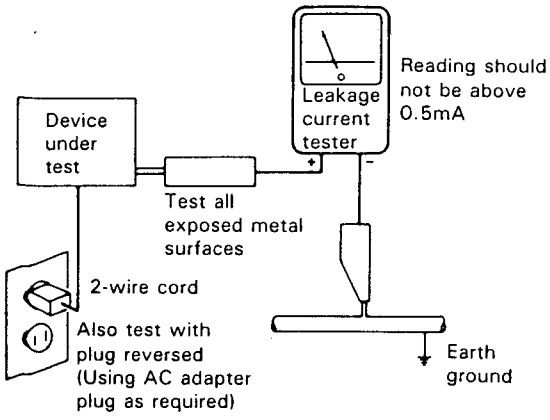
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS AND PARTS LIST

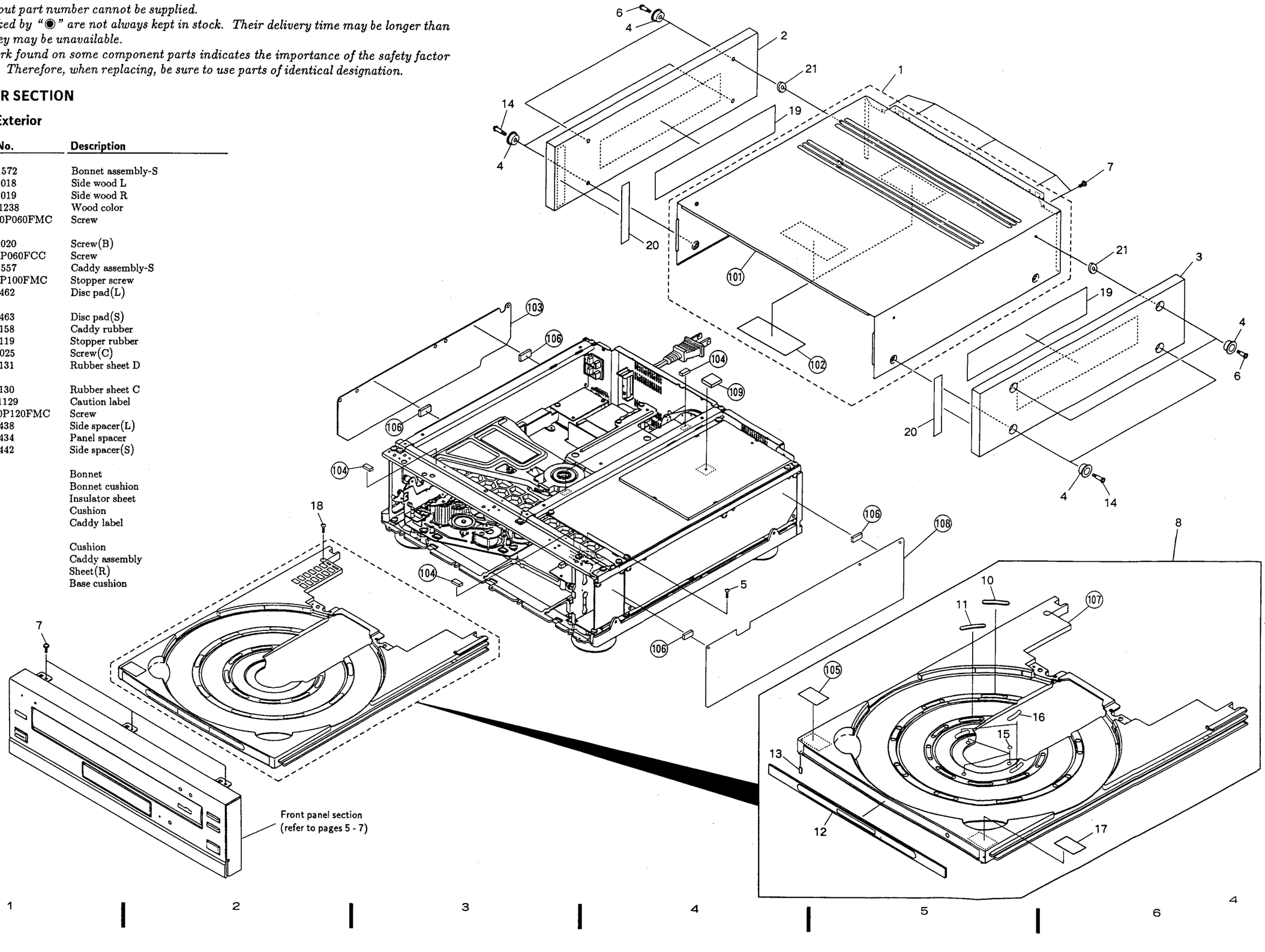
NOTES :

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

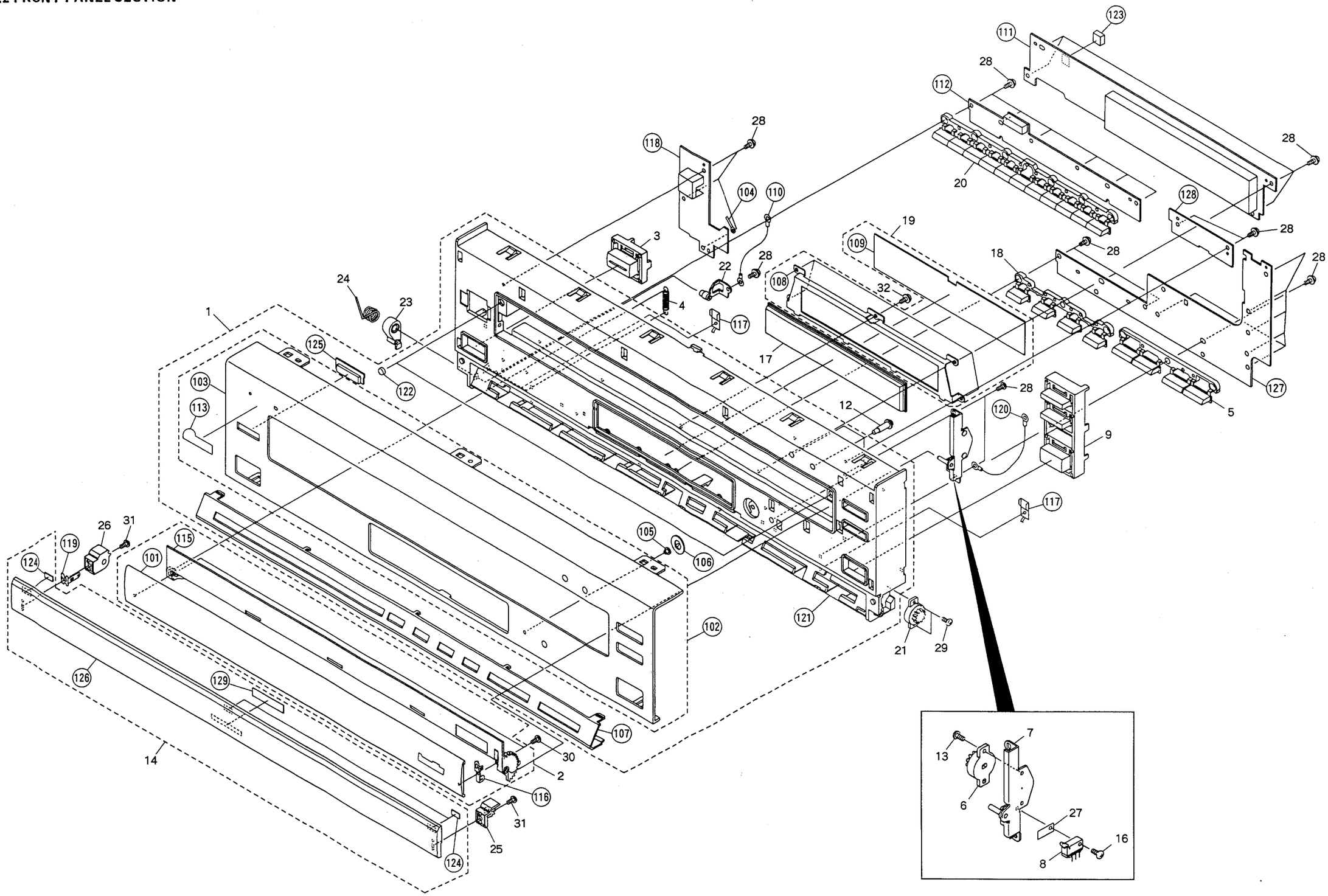
2.1 EXTERIOR SECTION

Parts List of Exterior

Mark	No.	Parts No.	Description
	1	VXX1572	Bonnet assembly-S
	2	VAP1018	Side wood L
	3	VAP1019	Side wood R
	4	PNW1238	Wood color
	5	VCZ30P060FMC	Screw
	6	VBA1020	Screw(B)
	7	IBZ30P060FCC	Screw
	8	VXX1557	Caddy assembly-S
	9	IPZ30P100FMC	Stopper screw
	10	VEC1462	Disc pad(L)
	11	VEC1463	Disc pad(S)
	12	VEB1158	Caddy rubber
	13	VEB1119	Stopper rubber
	14	VBA1025	Screw(C)
	15	VEB1131	Rubber sheet D
	16	VEB1130	Rubber sheet C
	17	VRW1129	Caution label
	18	BBZ30P120FMC	Screw
	19	VEC1438	Side spacer(L)
	20	VEC1434	Panel spacer
	21	VEC1442	Side spacer(S)
	101		Bonnet
	102		Bonnet cushion
	103		Insulator sheet
	104		Cushion
	105		Caddy label
	106		Cushion
	107		Caddy assembly
	108		Sheet(R)
	109		Base cushion



2.2 FRONT PANEL SECTION



Parts List of Front Panel Section

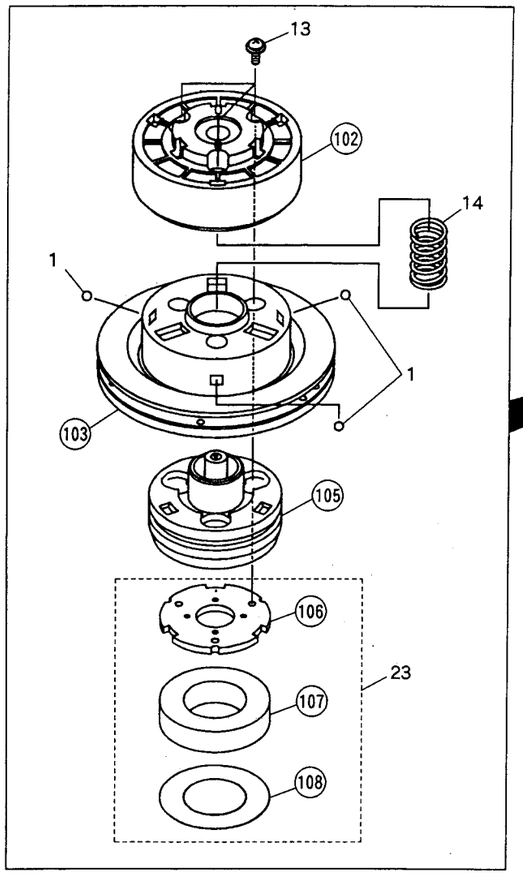
Mark No.	Parts No.	Description
1	VXX1571	Front panel assembly-S
2	VXX1573	Door assembly-S
3	VNK1712	Power button
4	VBH1140	Door spring
5	VNK1711	Search key
6	VXA1053	Dumper assembly
7	VXA1623	Dumper plate assembly
8	VSK1014	Door switch
9	VNK1713	Function key
10		· · · · ·
11		· · · · ·
12	VLL1313	Gold button
13	PMZ20P040FCU	Screw
14	VXX1574	Pocket assembly-S
15		· · · · ·
16	PMZ20P060FMC	Screw
17	VEC1392	FL panel
18	VNK1710	Mode key
19	VXX1575	Back plate assembly-S
20	VNK1709	Ten key
21	REC1013	Dumper assembly
22	VXA1536	Pocket holder assembly
23	VNL1339	Pocket Lock
24	VBH1141	Pocket spring
25	VNK1715	Pocket arm R
26	VNK1714	Pocket arm L
27	DEC1238	Insulator sheet
28	IPZ26P060FCU	Screw
29	BPZ20P060DCU	Screw
30	PMZ20P030FNI	Screw
31	PMZ26P050FNI	Screw
32	BPZ26P060FCU	Screw

Mark No.	Parts No.	Description
101		Door Aluminum assembly
102		Front Aluminum assembly
103		Front Aluminum
104		Cord holder
105		LED lens
106		LED color
107		Under Aluminum
108		Back plate
109		FL filter
110		Earthlug assembly
111		FLMB assembly
112		KEYB assembly
113		Name plate
114		· · · · ·
115		Door holder assembly
116		Door Earth
117		Under Earth
118		IRKB assembly
119		Pocket Earth
120		Earthlug assembly
121		Front panel
122		Door rubber
123		P.C.B. cushion
124		Pocket cushion
125		Sensor Acrilyc
126		Pocket Aluminum
127		OPEB assembly(1/2)
128		OPEB assembly(2/2)
129		Pocket spacer

2.3 CLAMPER SECTION

Parts List of Clamper Section

Mark No.	Parts No.	Description
1	VNX1006	Steel ball
2	VNL1237	Mech. support
3	BPZ30P080FCU	Screw
4	VBA1010	Floating screw A
5	VBA1013	Floating screw B
6	PMAB30P080FCU	Screw
7	PBA1013	Screw(B)
8	VBH1093	Arm spring
9	VXA1344	Clamper holder assembly
10	VXA1415	Clamper arm(B) assembly
11	VXA1326	Roller plate(B) assembly
12	VXA1329	Synchro gear assembly
13	AMZ20P040FMC	Screw
14	VBH1097	Centering spring(B)
15	BPZ20P040FZK	Screw
16	VNL1223	Clamper Head
17	VBH1099	Arm spring
18	VNE1361	Plate spring
19	VNL1246	Parallel link
20	VEC1302	Plastic rivet
21	VXA1424	Clamper arm(A) assembly
22	IBZ30P060FCC	Screw
23	VXX1333	Magnetic assembly-S
24	VXX1508	Clamper assembly-S
25	VEC-143	Plastic rivet
26	WT34D060D050	Washer
27	WA32N080W050	Washer
28	YE25FUC	E ring
29	BBZ26P060FMC	Screw
101		P.C.B. holder(B)
102		Clamper cover
103		Disc clamper
104		YCSB assembly
105		Centering hab(B)
106		Yoke plate
107		Magnet
108		Gap sheet
109		Cushion
110		Arm reinforced plate
111		HDTV assembly
112		P.C.B. holder
113		Earth plate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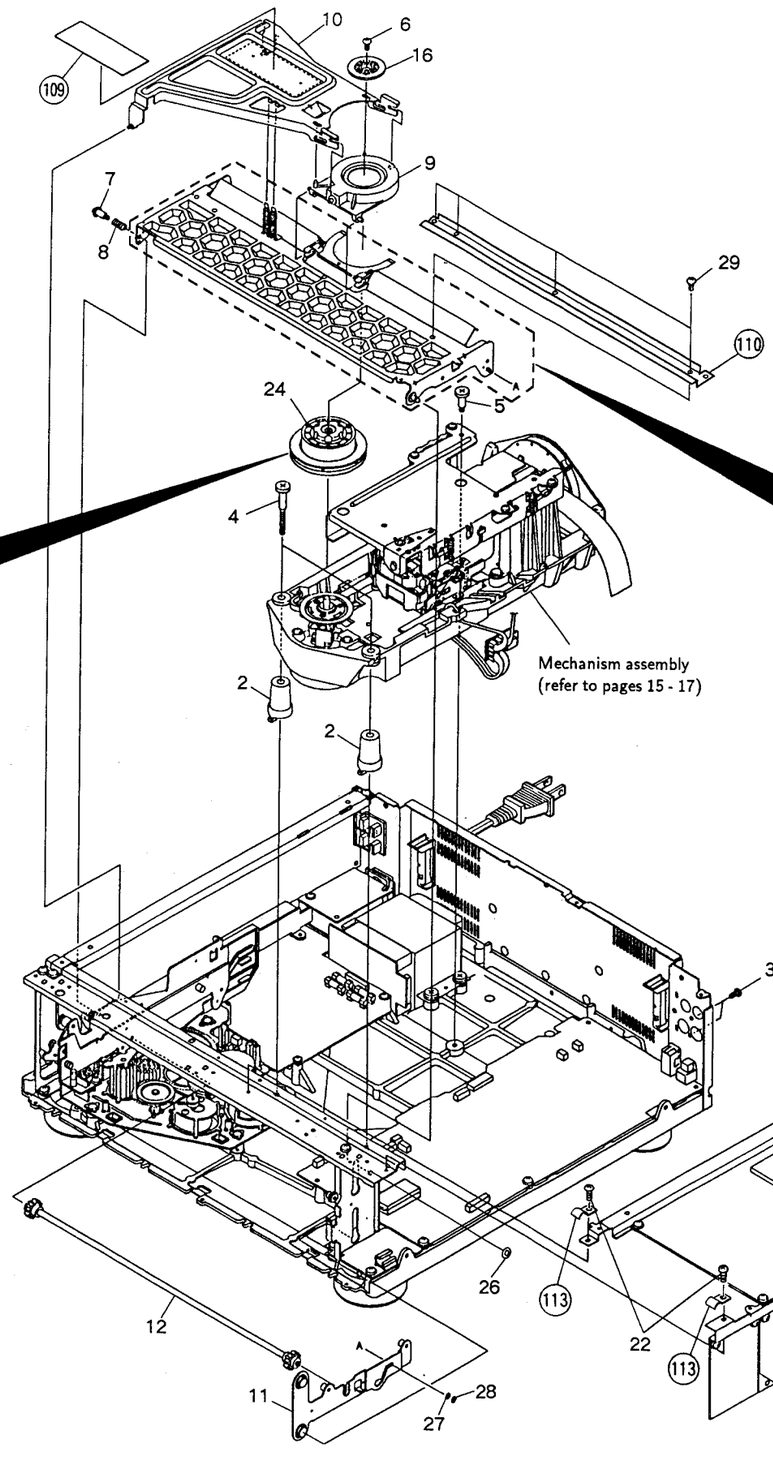
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Mechanism assembly
(refer to pages 15 - 17)
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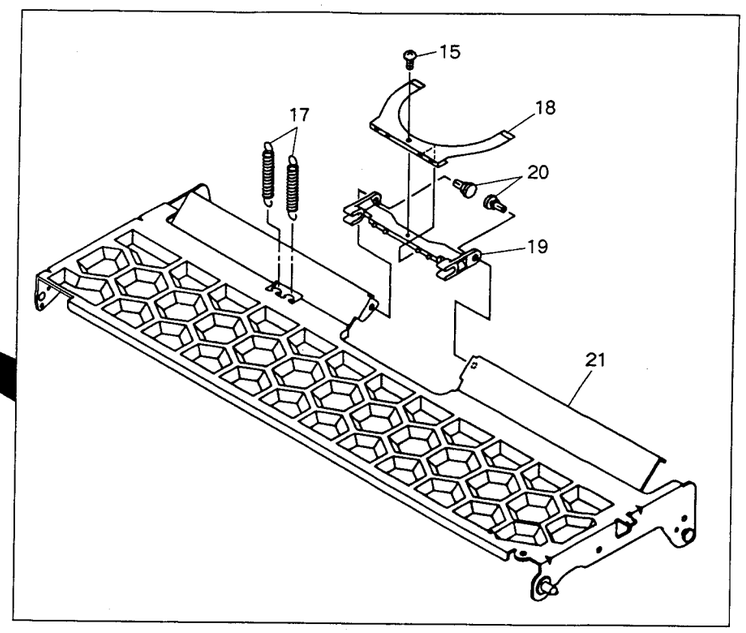
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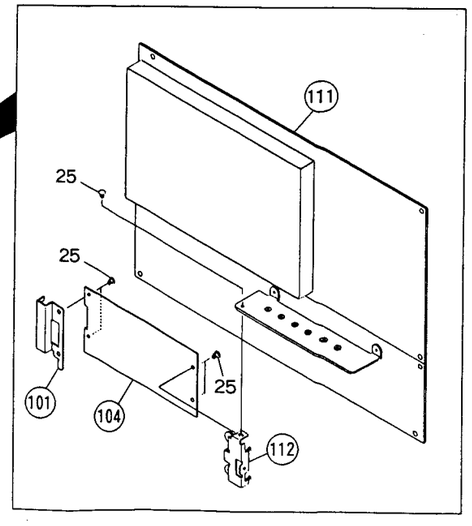
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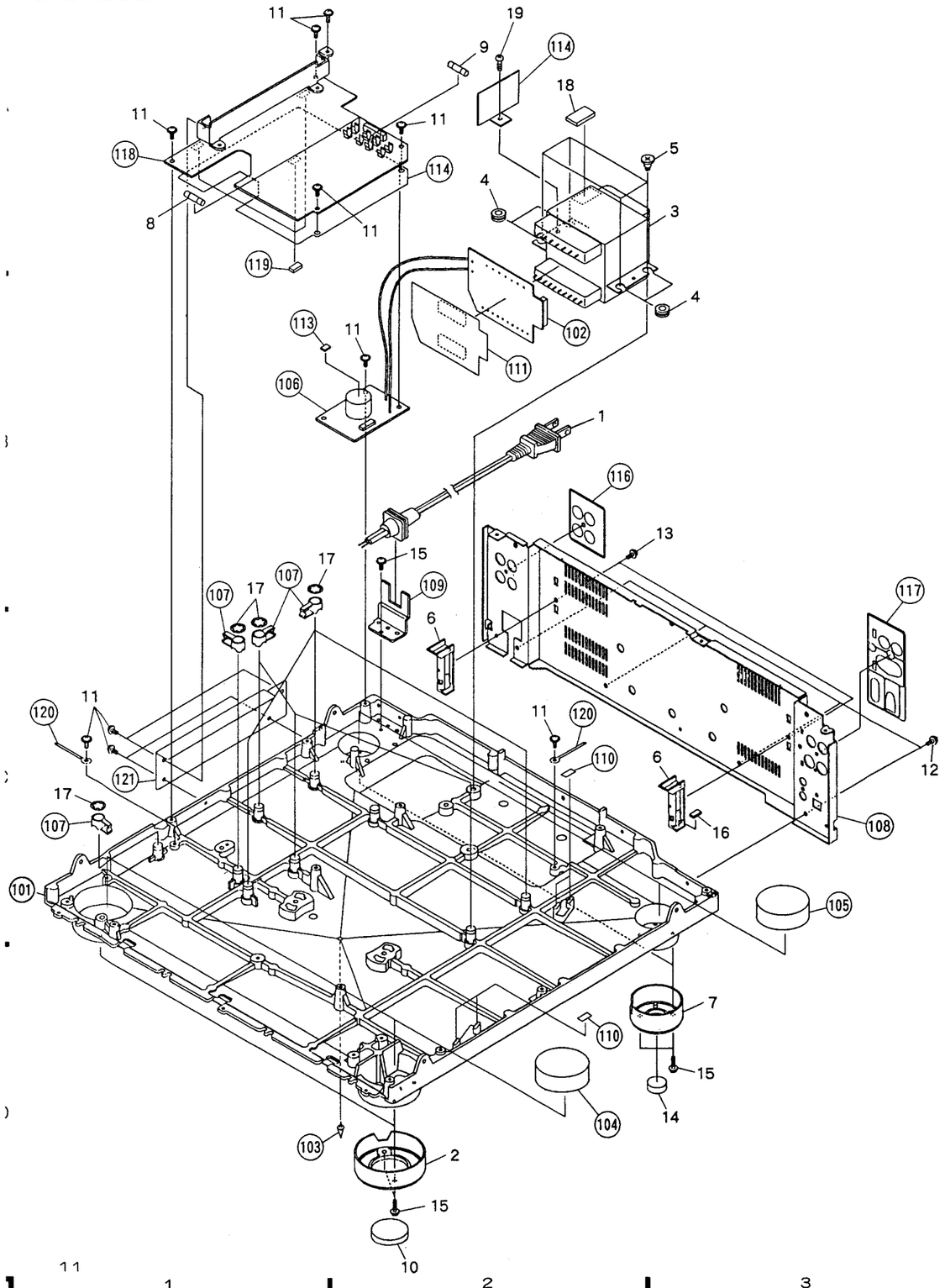
2.4 BASE SECTION



2.4 BASE SECTION

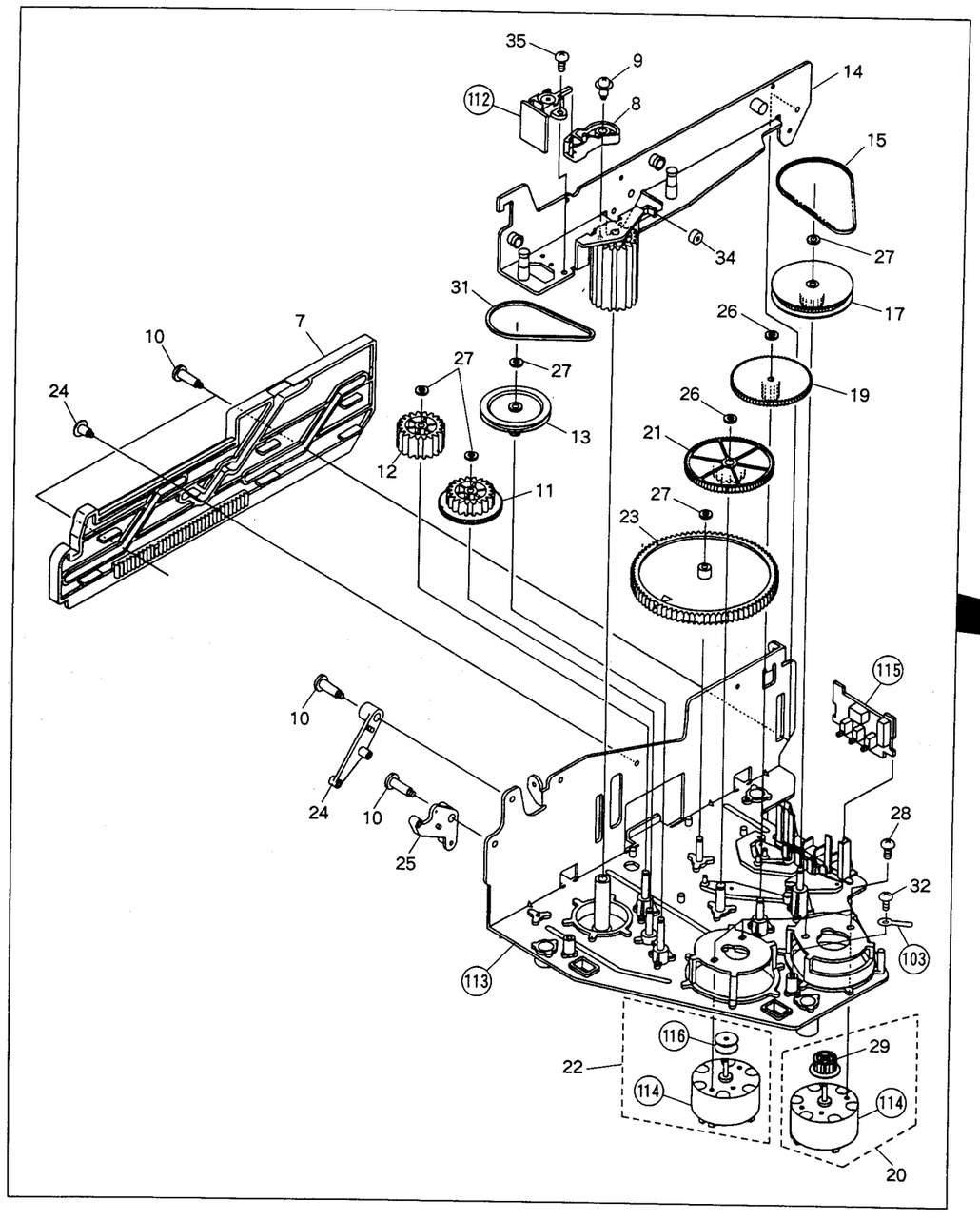
Parts List of Base Section

Mark	No.	Parts No.	Description
⚠	1	VDG1046	Power cord
	2	VNK1593	Cap(F)
⚠	3	VTT1093	Power transformer
	4	VEB1100	Transformer rubber
	5	VBA1011	Transformer biss
	6	VNL1202	Tray stopper
	7	VNK1594	Cap(R)
⚠	8	VEK-018	Fuse(FU1,FU2,FU5)(3A)
⚠	9	VEK-022	Fuse(FU3,FU4)(2A)
	10	VEC1440	Cushion
	11	IBZ30P060FCC	Screw
	12	BBT30P060FCC	Screw
	13	IPZ30P080FCU	Screw
	14	VEC1401	Cushion(R)
	15	BBZ30P080FCC	Screw
	16	VEB1033	Door dump rubber
	17	YS80FBT	Stopper ring
	18	VEC1445	Transformer cushion
	19	BCZ30P050FMC	Screw
	101		Under base
	102		TRSB assembly
	103		Rubber foot
	104		Pad(F)
	105		Pad(R)
	106		LSFB assembly
	107		Wire clip
	108		Rear panel
	109		Cord holder
	110		Dump sheet
	111		Insulation sheet
	112		· · · · ·
	113		Filter cushion
	114		Shield sheet
	115		· · · · ·
	116		Label (L)
	117		Label (R)
	118		SYPS assembly
	119		Spacer
	120		Cord holder
	121		Shield plate

2.5 LOADING SECTION

Parts List of Loading Section

Mark	No.	Parts No.	Description
	1	PEB1109	Stopper rubber
◉	2	VWS1099	MAIN assembly
◉	3	VWV1201	AUDB assembly
	4	PBA1014	Screw (B)
	5	IBZ30P060FCC	Screw
	6	BPZ30P080FCU	Screw
	7	VNL1231	Slide cam
	8	VNL1239	SW lever
	9	VBA1008	Screw (B)
	10	VBA1014	Screw (C)
	11	VNL1229	Gear (B)
	12	VNL1230	Follow gear
	13	VNL1249	Gear pulley
	14	VXA1532	Roller plate(L) assembly
	15	VEB1069	Synchro belt
	16	PDK012A	Program P ROM-S (IC205)
	17	VXA1263	Timing pulley assembly
	18	BBZ30P080FCC	Screw
	19	VNL1280	Gear (D)
	20	VXX1324	Loading motor V assembly
	21	VNL1141	Gear (A)
	22	VXX1328	Loading motor H assembly
	23	VNL1228	Cam gear
	24	VNL1290	Lock arm
	25	VNL1247	Lever OC
	26	WT34D060D050	Washer
	27	WT26D047D025	Washer
	28	BMZ26P040FCU	Screw
	29	VNL1148	Motor pulley
	30	VEC-143	Plastic rivet
	31	PEB1013	Belt
	32	BBZ30P080FMC	Screw
	33		· · · · ·
	34	VEB1091	Stop ring
	35	BMZ26P040FMC	Screw
	36	VEC1072	Case sheet
	101		Angle (L)
	102		Center angle
	103		Cord holder
	104		P plate holder
	105		Loading assembly
	106		JCCB assembly
	107		Front angle
	108		Stay (R) assembly
	109		HDTV assembly
	110		Under base
	111		Side stay (L)
	112		LHSB assembly
	113		Loading base assembly
	114		Carriage motor
	115		LVSB assembly
	116		Motor pulley
	117		SPRT assembly
	118		Wire clip (A)
	119		ERRM assembly
	120		PCB holder
	121		Dump cushion
	122		RDAB assembly
	123		LDAB assembly
	124		Earth plate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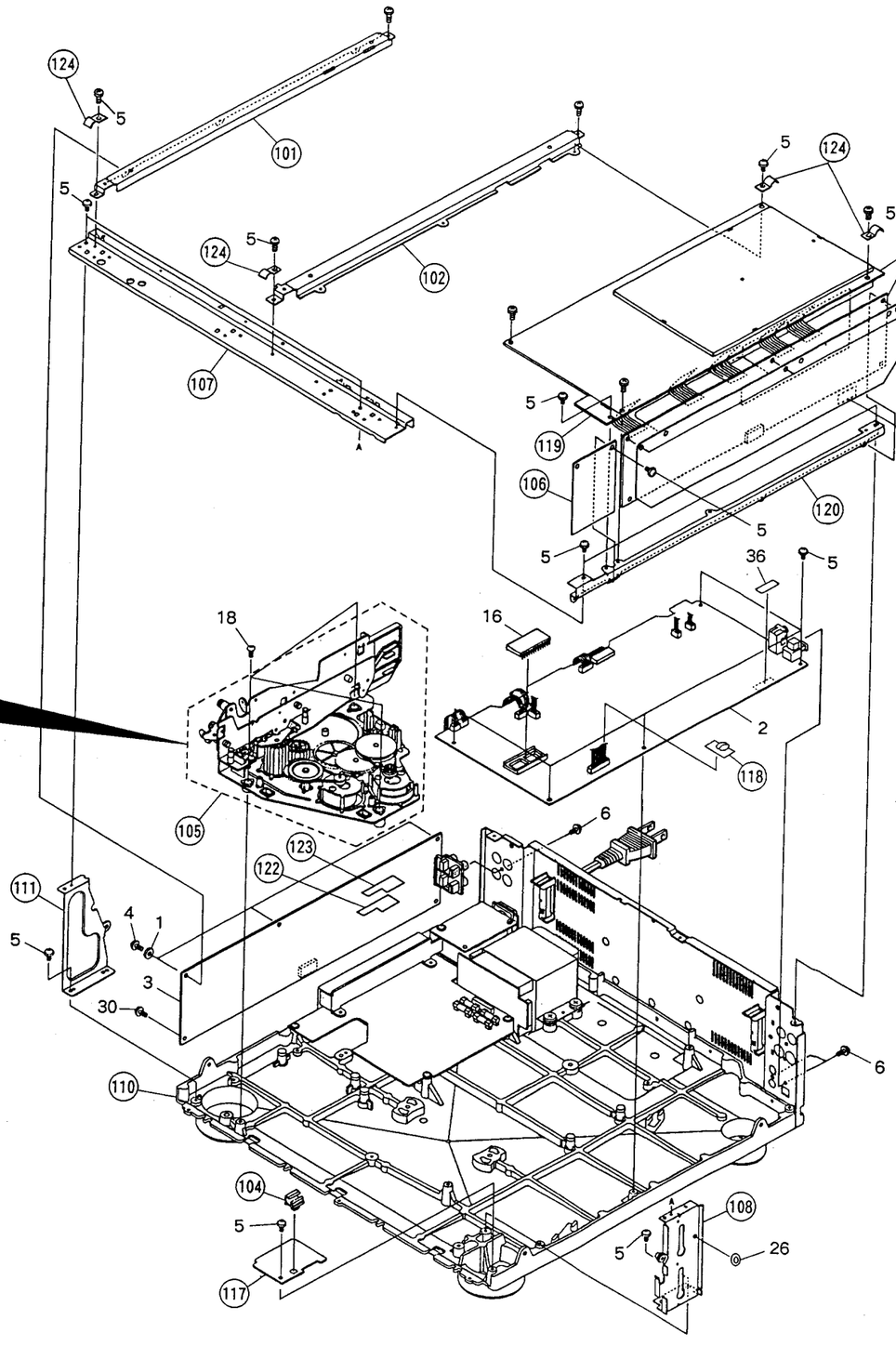
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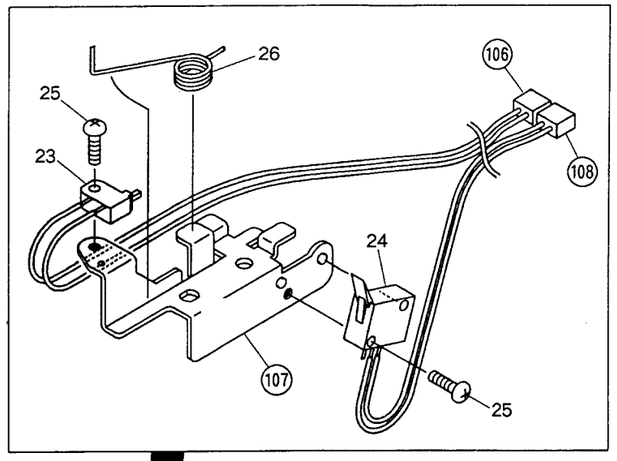
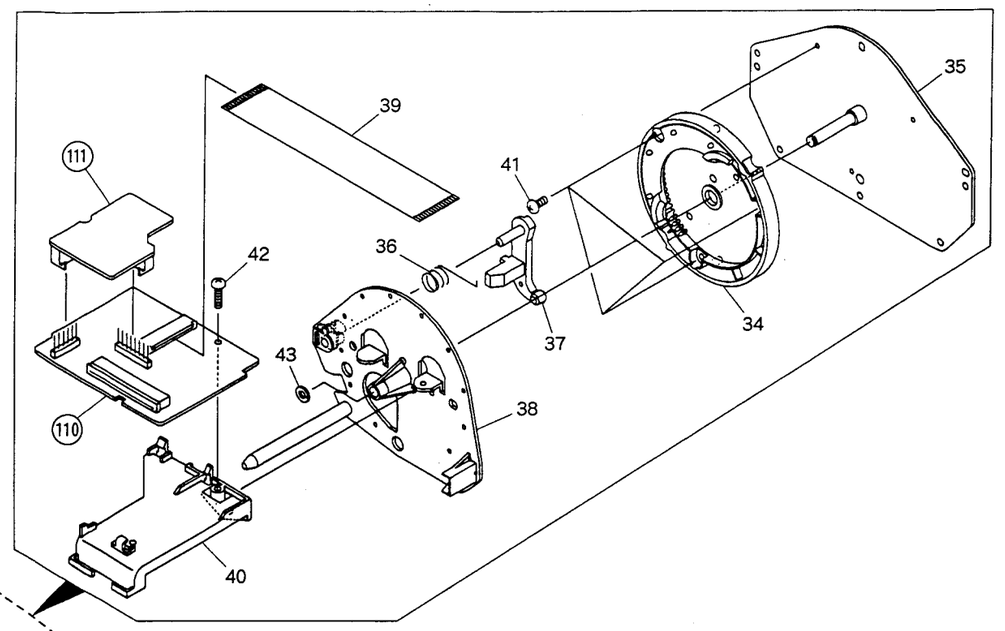
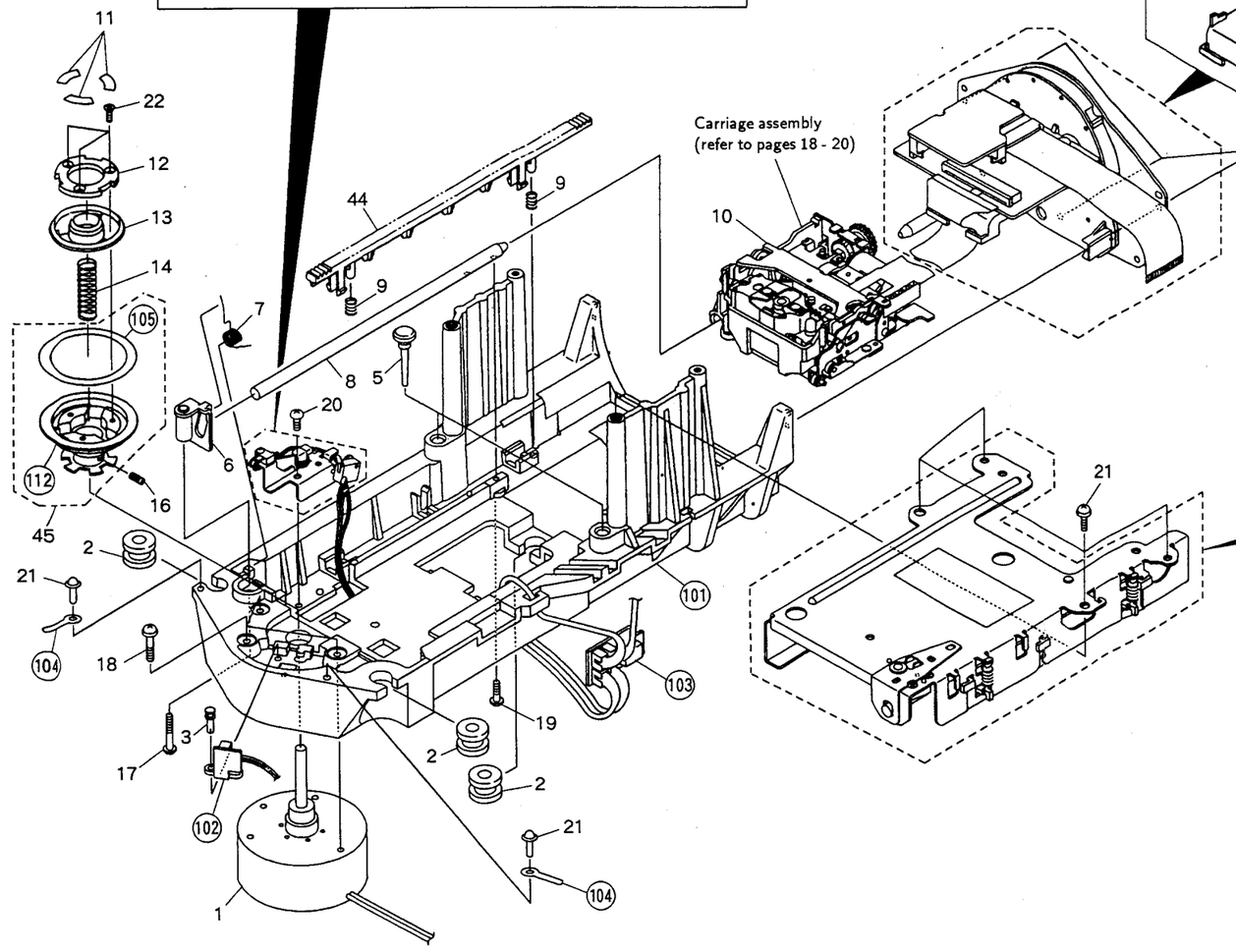
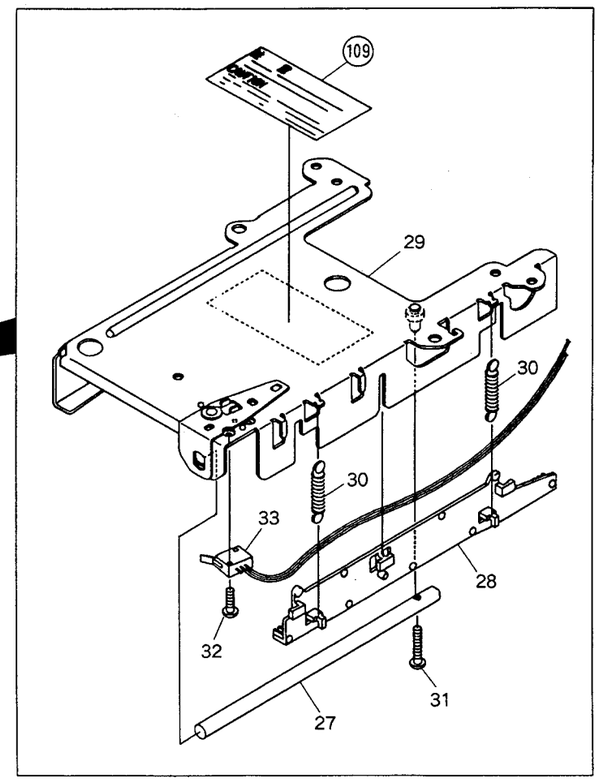
2.6 MECHANISM SECTION









Mark	No.	Parts No.	Description
	1	VXM1044	Spindle motor
	2	VEB1095	Floating rubber A
	3	VEC1298	Plastic rivet
	4		· · · · ·
	5	VEB1094	Dumper
	6	VXA1345	Holder assembly
	7	VBH1098	Holder spring A
	8	VLL1202	Carriage shaft (Lower)
	9	VBH1057	Rack spring (Lower)
◉	10	VWT1054	Carriage assembly
	11	VEC1332	Sheet
	12	VNE1360	Yoke plate A
	13	VNT1033	Centering hab (A)
	14	VBH1024	Centering spring
	15		· · · · ·
	16	ZMD30H050FBT	Screw
	17	BMZ30P160FCU	Screw
	18	PMB30P200FCU	Screw
	19	PMZ26P130FMC	Screw
	20	BPZ30P100FCU	Screw
	21	IPZ30P100FCU	Screw
	22	CBZ20P080FMC	Screw
	23	DSG1012	Push switch (CD INSIDE)
	24	VSK1003	Slide switch (CDV, LD A INSIDE)
	25	PMZ20P070FCU	Screw
	26	VBH1104	Holder spring B
	27	VNL1201	Carriage shaft (Upper)
	28	VNL1153	Rack gear (Upper)
	29	VXA1334	Mechanism chassis assembly (Upper)
	30	VBH1058	Rack spring (Upper)
	31	PMZ20P160FMC	Screw
	32	PMZ20P080FMC	Screw
	33	VSK1003	Slide switch(LD B INSIDE)
	34	VXA1335	Internal gear assembly
	35	VXA1333	G plate assembly
	36	VBH1072	Lever spring
	37	VNL1234	Lock lever
	38	VXA1332	R plate assembly
	39	VDA1207	Flexible cable (FFC)
	40	VNL1235	Harness guide
	41	BBZ26P060FCC	Screw
	42	BBZ30P140FCC	Screw
	43	WT36D072D050	Washer
	44	VNL1238	Rack gear (Lower)
	45	VXX1323	Turn table assembly-S

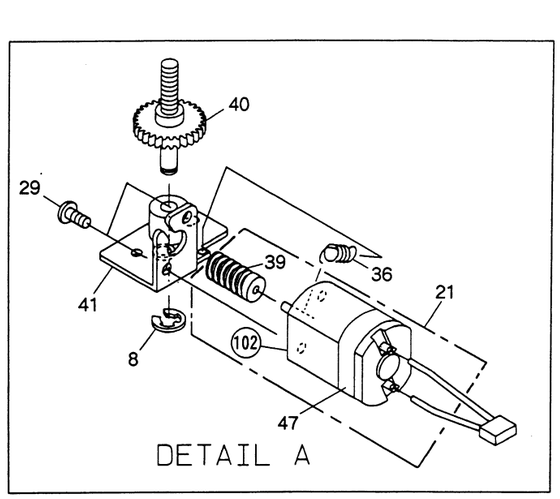
Mark	No.	Parts No.	Description
	101		Mechanism chassis (Lower)
	102		FGSB assembly
	103		CNNB assembly
	104		Clamper
	105		Rubber sheet
	106		Housing assembly
	107		SW holder
	108		Housing assembly
	109		Caution label
	110		PREB assembly
	111		PRET assembly
	112		Turn table assembly

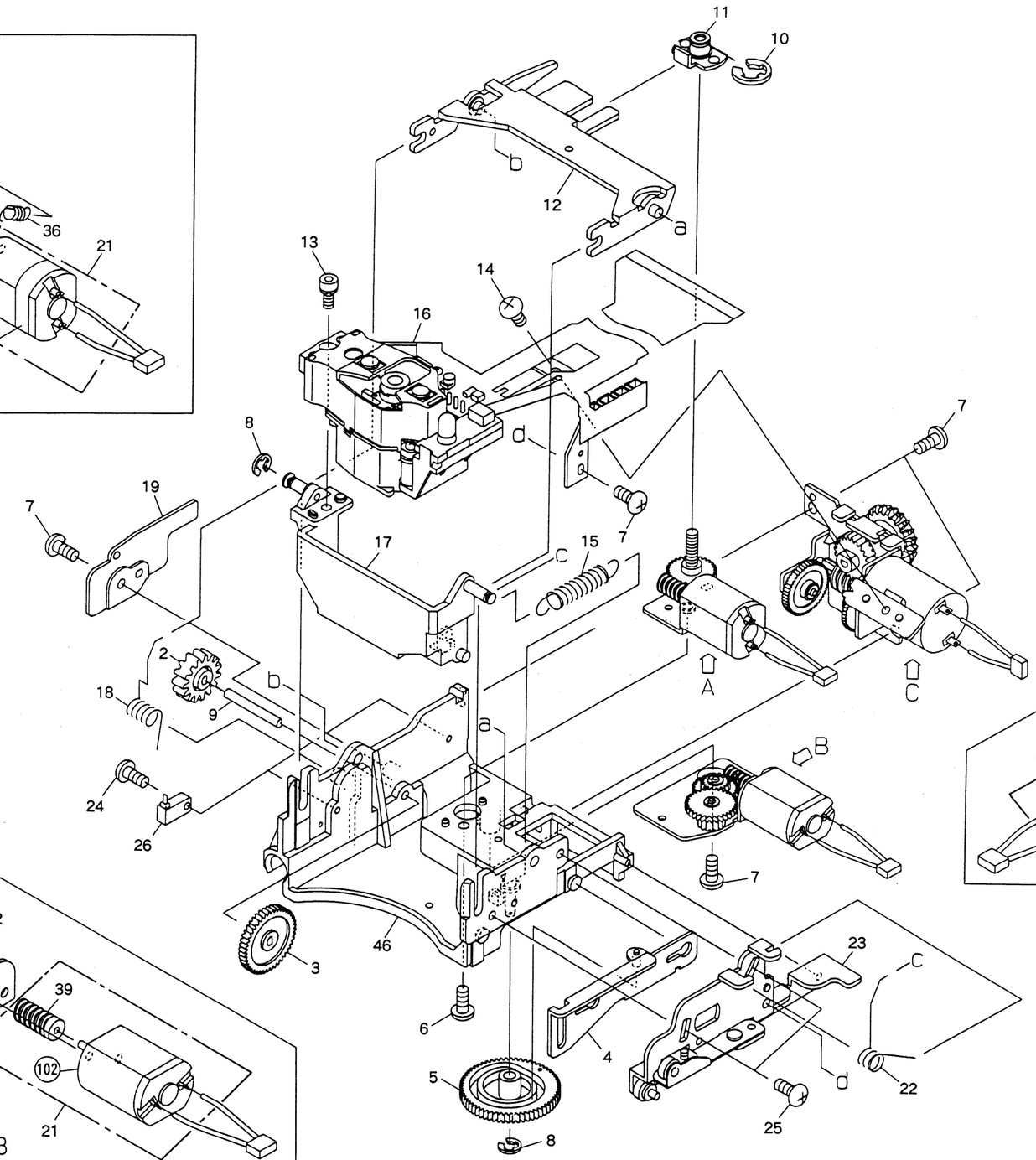
2.7 CARRIAGE ASSEMBLY(VWT 1054)

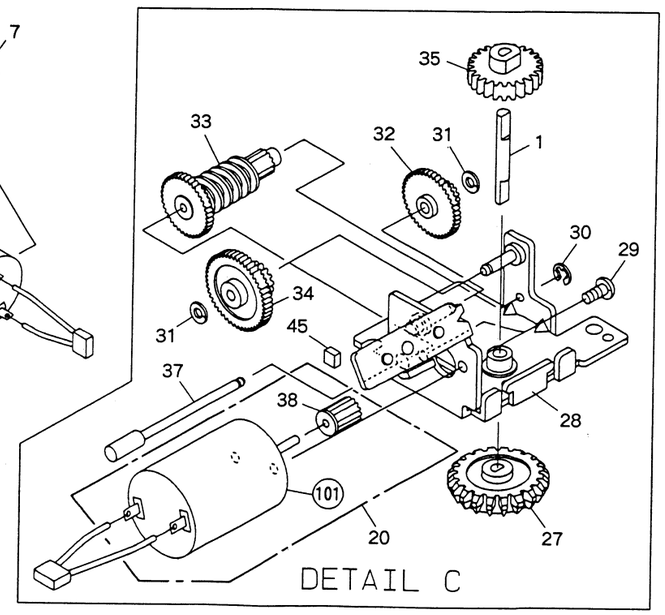
Parts List of Carriage Assembly

Mark	No.	Part No.	Description
	1	VLL1152	SL shaft (B)
	2	VNL1158	SL gear (F)
	3	VNL1253	SL gear (E)
	4	VXA1243	Slide plate assembly
	5	VNL1166	TL cam gear
	6	PMA26P050FMC	Screw
	7	BBZ26P050FCC	Screw
	8	YE20FUC	E ring
	9	VLL1270	SL shaft (C)
	10	YE40FUC	Stop ring
	11	VXA1259	AF plate assembly
	12	VXA1246	AF arm assembly
	13	VLL1107	Bolt 2.6 × 6
	14	PBZ26P040FCC	Screw
	15	VBH1063	Tilt spring
	16	VWY1019	Pickup assembly
	17	VXA1336	PU holder assembly
	18	VBH1061	AF spring (L)
	19	VNE1284	AF stopper
	20	VXX1329	Slider motor assembly-S
	21	VXX1227	Tilt (Height) motor assembly-S
	22	VBH1088	AF spring (R)
	23	VXA1331	TAN base assembly
	24	PBZ20P070FCC	Screw
	25	PMB26P050FCU	Screw
	26	VSK1009	Slide switch (S5) (HEIGHT UP, DOWN)
	27	VNL1163	SL gear (H)
	28	VXA1241	SL base assembly
	29	JGZ20P022FMC	Screw
	30	YE12FUC	Stop ring
	31	WT17D034D050	Washer
	32	VNL1251	SL gear (B)
	33	VNL1137	SL gear (C)
	34	VNL1252	SL gear (D)
	35	VNL1159	SL gear (G)
	36	VBH1122	M spring
	37	VLL1151	SL shaft (A)
	38	VNL1250	SL gear (A)
	39	VNL1138	AF worm
	40	VXA1244	AF gear assembly
	41	VXA1245	AF holder assembly
	42	VNL1164	TL gear (A)
	43	VNL1165	TL gear (B)
	44	VXA1242	TL base assembly
	45	VEB1108	Dump rubber
	46	VXA1219	Carriage assembly
	47	VEC1193	Dump sheet

Mark	No.	Part No.	Description
	101		Slider motor
	102		Tilt motor


40
29
39
36
41
21
102
8
47
DETAIL A


11
10
12
b
a
13
14
16
d
8
7
19
7
17
15
C
7
2
18
9
b
a
A
C
B
24
26
7
3
46
6
5
8
4
23
C
d
22
25


35
33
32
31
1
30
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31
45
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101
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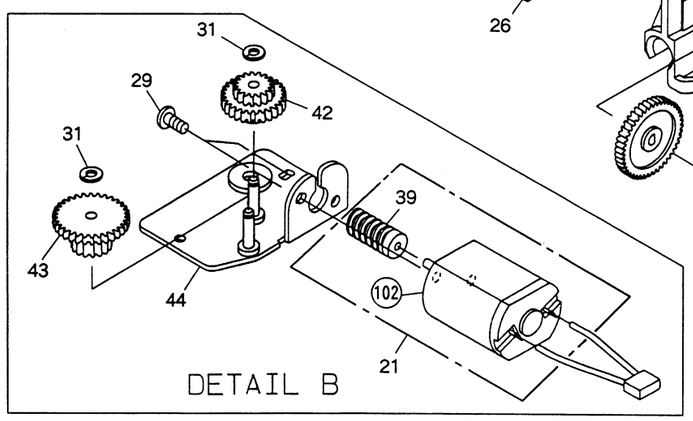
DETAIL C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102
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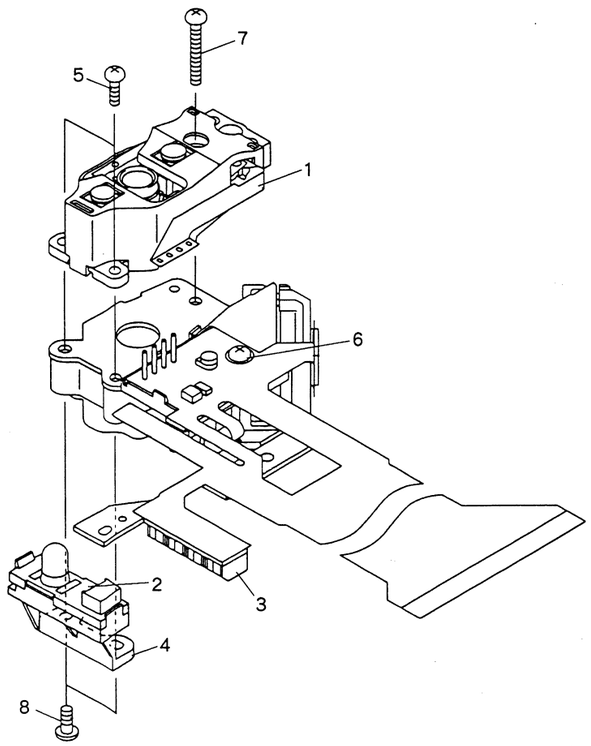
DETAIL B

2.8 PICKUP ASSEMBLY(VWY 1019)



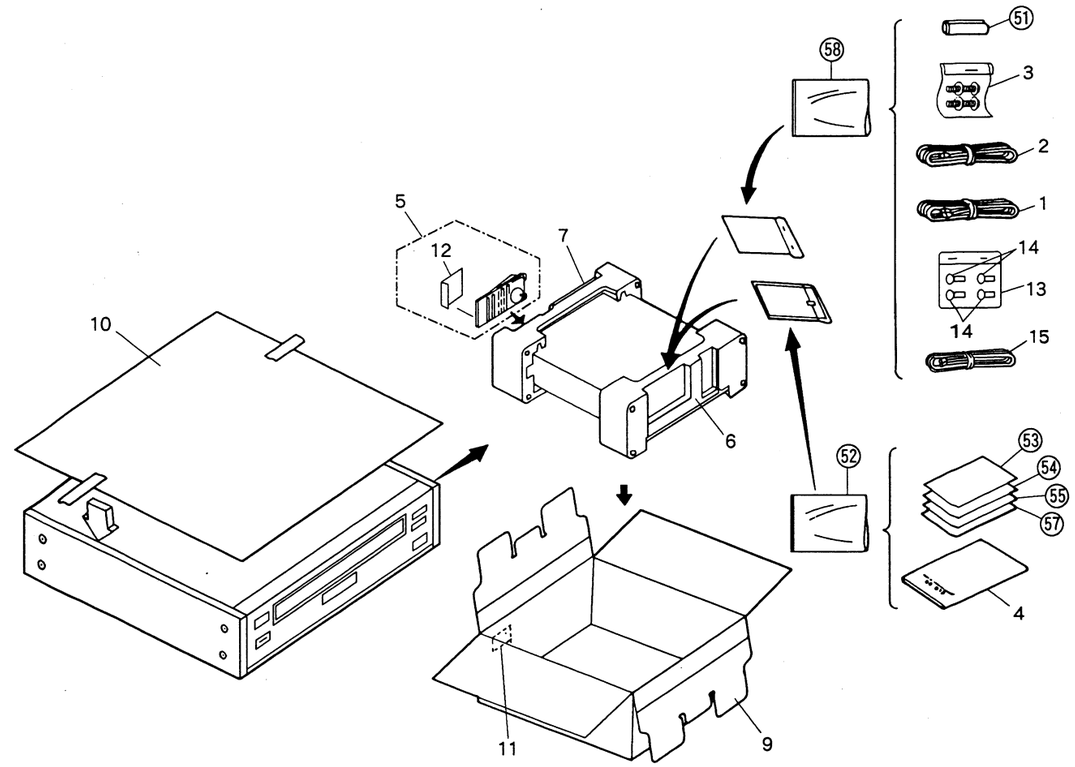
Parts List of Pickup Assembly

Mark No.	Parts No.	Description
1	VXX1552	Actuator assembly
2	VEX1018	Sensor assembly
3	VXX1332	Pre pickup assembly
4	VNH1020	Sensor stay
5	PMA20P060FMC	Screw
6	PMA20P080FMC	Screw
7	PMA20P160FMC	Screw
8	PMB20P050FMC	Screw

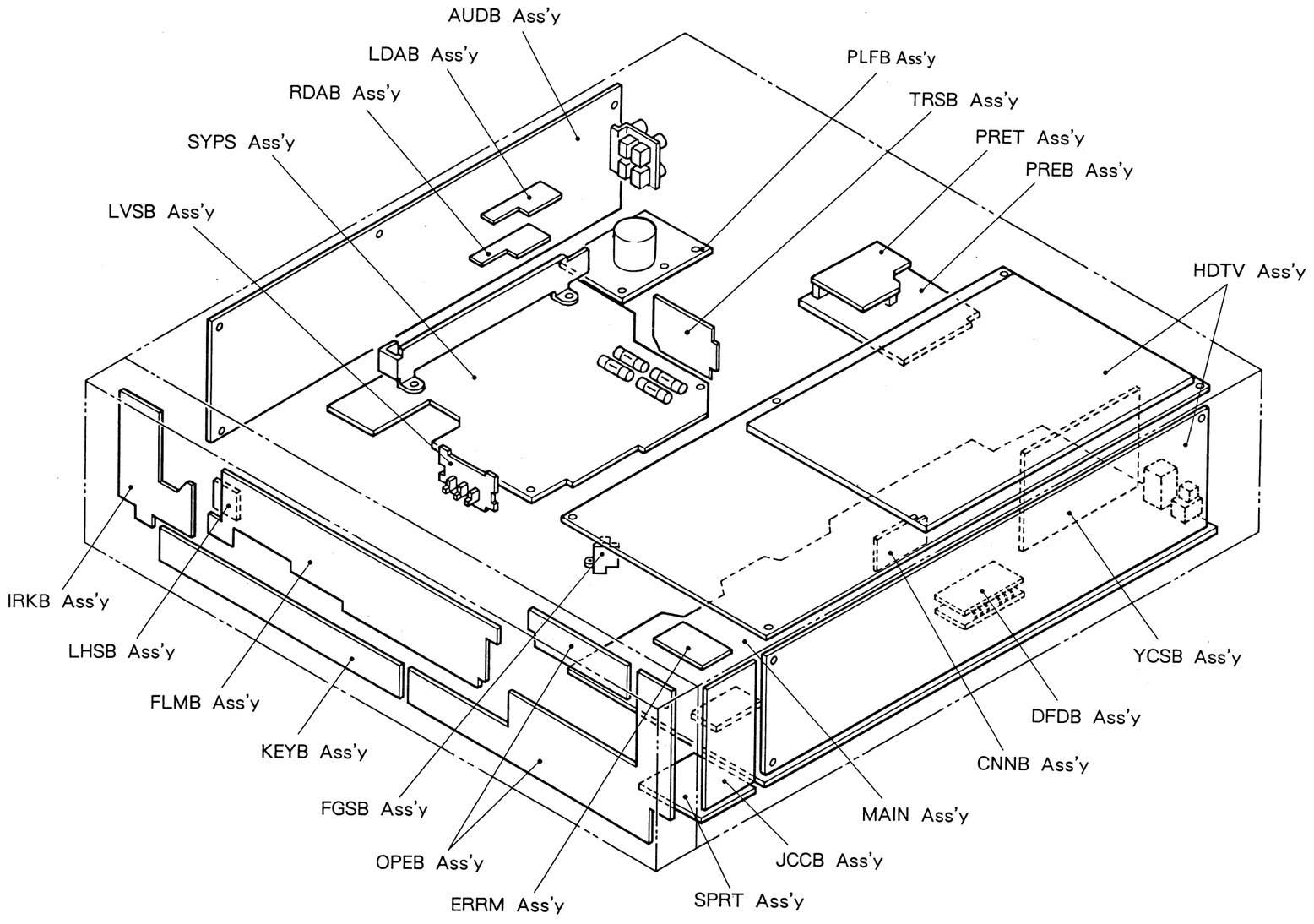
3. PACKING

Parts List

Mark No.	Parts No.	Description	Mark No.	Parts No.	Description
1	PDE1003	Connection cord with pin plug	51		Battery(R03, AAA)
2	VDE1003	Video cable	52		Polyethelene bag
3	VBX1001	Screw assembly	53		Caution card
4	VRB1049	Instructions Manual(English)	54		Service network
5	VXX1546	Remote control unit	55		LD software catalog
6	VHA1072	Pad (F)	56		· · · · ·
7	VHA1073	Pad (R)	57		Caution card(UC)
8		· · · · ·	58		Polyethelene bag
9	VHG1148	Packing case			
10	VHL1012	Mirror mat			
11	VRW1165	POS code label			
12	VNK1806	Battery cover			
13	VBX1002	Cap assembly			
14	VEC1435	Cap			
15	VDE1013	S video cable			



4. P.C.BOARDS LOCATION



MAIN : **MAIN** BOARD
AUDB : **AUD**IO **B**OARD
SYPS : **SY**STEM **P**OWER **S**UPPLY
LHSB : LOADING **H**ORIZONTAL **S**WITCH **B**OARD
LVSB : LOADING **V**ERTICAL **S**WITCH **B**OARD
FGSB : **FG S**WITCH **B**OARD
KEYB : **KEY B**OARD
CNNB : **CONN**ECTOR **B**OARD
HDTV : **H**IGH-BRED CIRCUIT OF **D**IGITAL **T**BC AND **V**IDEO
PREB : **PRE** AMPLIFIER **B**OTTOM BOARD
PRET : **PRE** AMPLIFIER **T**OP BOARD
PLFB : **P**OWER AND **L**INE SURGE **F**ILTER **B**OARD
DFDB : **D**IGITAL **F**ILTER AND **D**ATA SELECTOR **B**OARD
LDAB : LEFT **D/A** CONVERTER **B**OARD
RDAB : **R**IGHT **D/A** CONVERTER **B**OARD
FLMB : **FL M**AIN **B**OARD
OPEB : **OPE**RATION **B**OARD
JCCB : **J**ITTER **C**ANCEL **C**IRCUIT **B**OARD
IRKB : **I**NFRARED **R**EY AND **K**EY **B**OARD
ERRM : **ERR**OR **R**ATE **M**EASURING **B**OARD
SPRT : **SUPPORT** BOARD
TRSB : **TRANS**FORMER **B**OARD
YCSB : **Y/C** SEPARATION **B**OARD

5. SCHEMATIC AND P.C.BOARDS DIAGRAM

5.1 OVERALL WIRING DIAGRAM

1.RESISTORS :
Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2.CAPACITORS :
Indicated in capacity (μF)/voltage(V) unless otherwise noted p ; pF. Indication without voltage is 50 V except electrolytic capacitor.

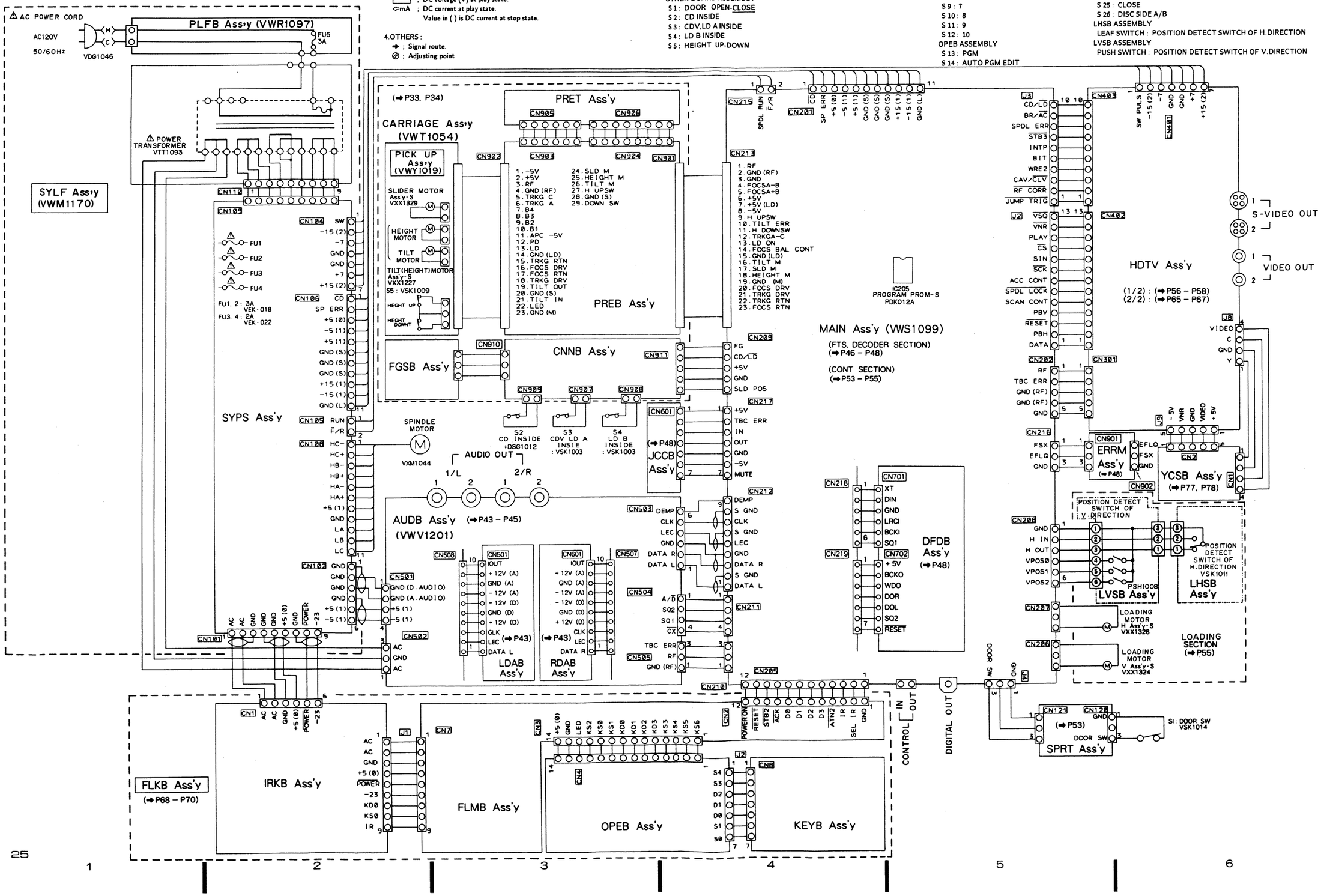
3.VOLTAGE, CURRENT :
; DC voltage (V) at play state.
⇦mA ; DC current at play state.
Value in ( ) is DC current at stop state.

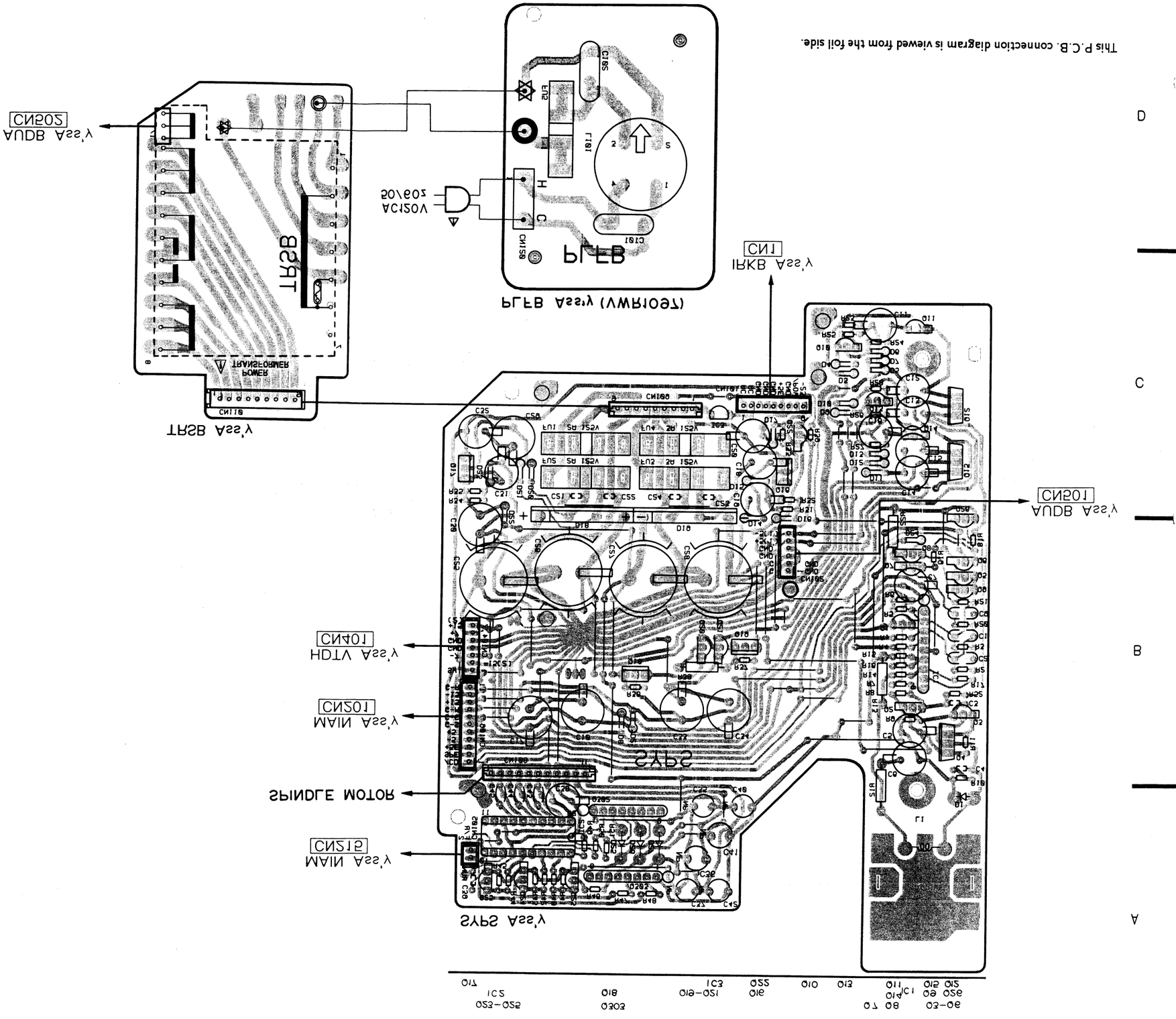
4.OTHERS :
➡ ; Signal route.
⊘ ; Adjusting point

The ⚠ mark found on some component parts indicates the inportance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES : (The underlined indicates the switch position)
OTHER BOARD ASSEMBLY
S1 : DOOR OPEN-CLOSE
S2 : CD INSIDE
S3 : CDV.LD A INSIDE
S4 : LD B INSIDE
S5 : HEIGHT UP-DOWN
IRKB ASSEMBLY
S1 : POWER STANDBY/ON
KEYB ASSEMBLY
S2 : +10
S3 : 1
S4 : 2
S5 : 3
S6 : 4
S7 : 5
S8 : 6
S9 : 7
S10 : 8
S11 : 9
S12 : 10
OPEB ASSEMBLY
S13 : PGM
S14 : AUTO PGM EDIT
S15 : VIDEO NR
S16 : RANDOM PLAY
S17 : ◀◀] SCAN
S18 : ▶▶
S19 : ⏮] SKIP
S20 : ⏭
S21 : DISPLAY OFF
S22 : PLAY/STILL
S23 : STOP
S24 : OPEN
S25 : CLOSE
S26 : DISC SIDE A/B
LHSB ASSEMBLY
LEAF SWITCH : POSITION DETECT SWITCH OF H.DIRECTION
LVSB ASSEMBLY
PUSH SWITCH : POSITION DETECT SWITCH OF V.DIRECTION





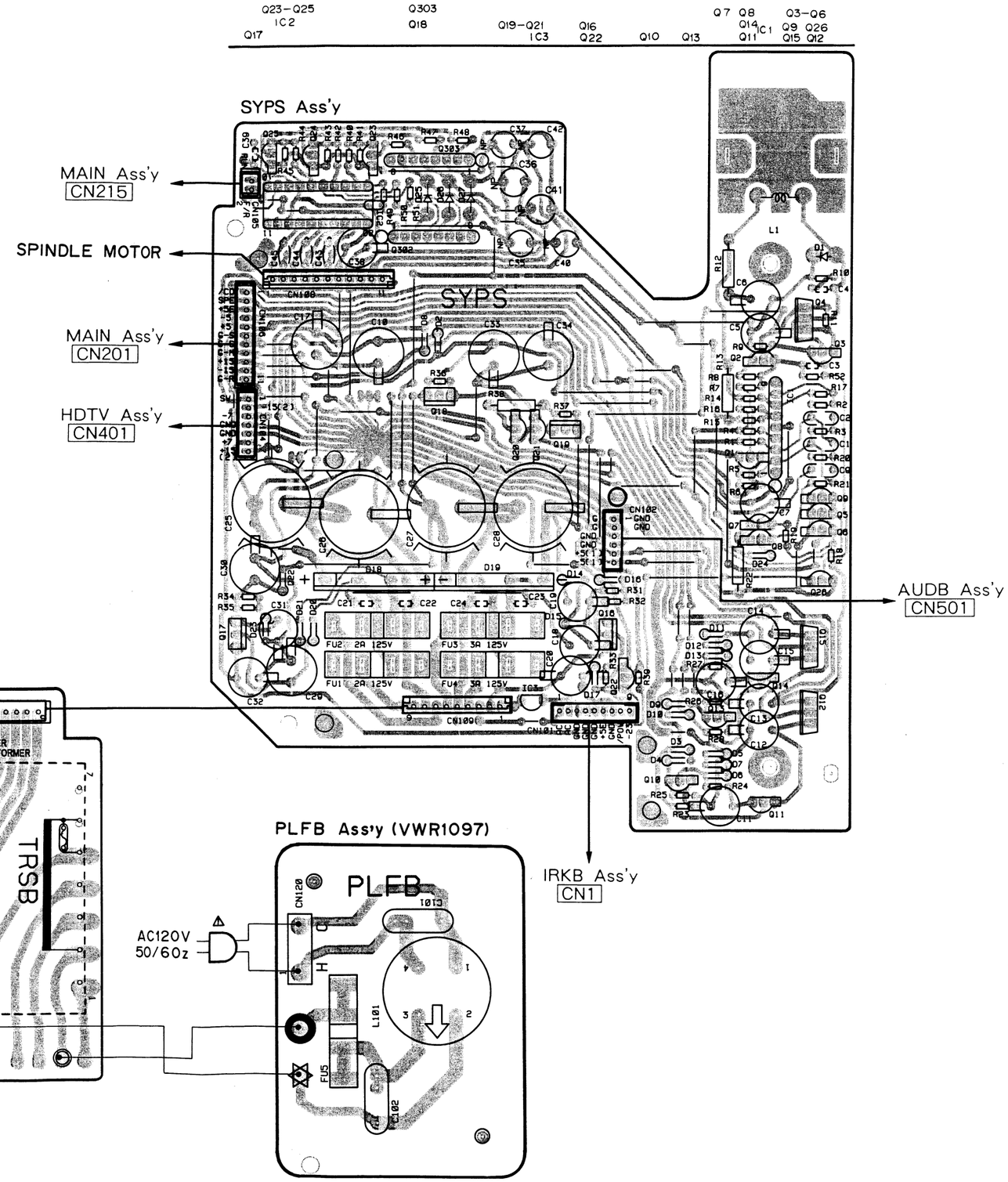
S.S SYPS, TRSB, PLFB ASSEMBLY

CRD-82

5.2 SYPS, TRSB, PLFB ASSEMBLY

P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode	SA		Styrol capacitor
			NP		Electrolytic capacitor (Non polarized)
			NL		Electrolytic capacitor (Noiseless)
		Zenner diode			Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Tact switch			Resistor array
					Resistor
		Inductor			
		Coil			Resonator
		Transformer			Thermistor
		Filter			

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.



CAUTION:FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE NO. ICP-N20, MFD BY ROHM CO.,LTD. FOR IC3

AC120V 50/60Hz
AC POWER CORD VDG1046
C101 0.01
FU5 3A
L101
C102 0.01
C101, 102 : RCG-009
L101 : VTL-157
PLFB Ass'y (VWR1097)

POWER TRANSFORMER VTT1193
TRSB Ass'y
AUDB Ass'y CN502
CN111
CN110
CN109

SYPS Ass'y

IC3
FU1 3A
FU2 3A
FU3 2A
FU4 2A
D18
D19
D20
D21
D22
D23
Q17
Q18
Q19
Q20
Q21
Q16
+5 (0)
+7
-7
+15 (0)
-15 (0)
+15 (1)
-15 (1)

Q12
Q11
Q10
Q13
Q14
Q15
Q22
D2
D8
+15 (1) +15 (2)
-15 (1) -15 (2)

CN101
(⇒P68) IRKB Ass'y CN1
AC
AC
GND
GND
GND
+5 (0)
GND
POWER
-23

CN102
(⇒P45) AUDB Ass'y CN501
GND
GND (D. AUDIO)
GND (A. AUDIO)
GND
+5 (1)
-5 (1)

CN104
(⇒P57) HDTV Ass'y(1/2) VIDEO (DEMODULATION SECTION) CN401
+15 (2)
+7
GND
GND
-7
-15 (2)
SW

CN106
(⇒P46) MAIN Ass'y (1/2) (FTS,DECODER SECTION) CN201
CD
SP. ERR
+5 (0)
-5 (1)
+5 (1)
GND (S)
GND (S)
GND (S)
+15 (1)
-15 (1)
GND (L)

IC1 (1/2)
IC1 (2/2)
3300p C1
C2 0.018
R3 11K
R1 5.1k
R4 6.8K
R5 12K
R6 3.9K
Q1
Q26
Q2
Q3
Q4
R9 5.6K
R10 56
C4 470p
C3 680p
R11 330
R52 47K
C5 47/50
L1
C6 3.3/50
R12 2.7 (1W)
R13 0.51 (1W)
R14 10K
R15 10K
R16 22K
R17 22K
C7 10/50
D1
R18 4.7k
Q6
Q5
Q7
Q8
Q9
R20 15K
C9 4700p
R21 4.7K
R22 3.3 (1W)
D24
10K R19

Q25 Q302 (3/3) 1
Q24 Q302 (2/3) 1
Q23 Q302 (1/3) 1
Q303 (1/3)
Q303 (2/3)
Q303 (3/3)
D27
D26
D25
R44 R45 1.8K
R48 R49 470 (1/2W)
R50 R51 470 (1/2W)
C37 C36 C35 22/50 (NP)
C42 C41 C40 22/50 (NP)

CN108
LC
LB
LA
GND
+5 (1)
HA+
HA−
HB+
HB−
HC+
HC−
SPINDLE MOTOR VXM1044
+5V (1)
4.7/50 C38
C43 0.033
C44 0.033
C45 0.033
IC2
CN105
F/R
RUN
C39 0.01
(⇒P46) MAIN Ass'y(1/2) (FTS,DECODER SECTION) CN215

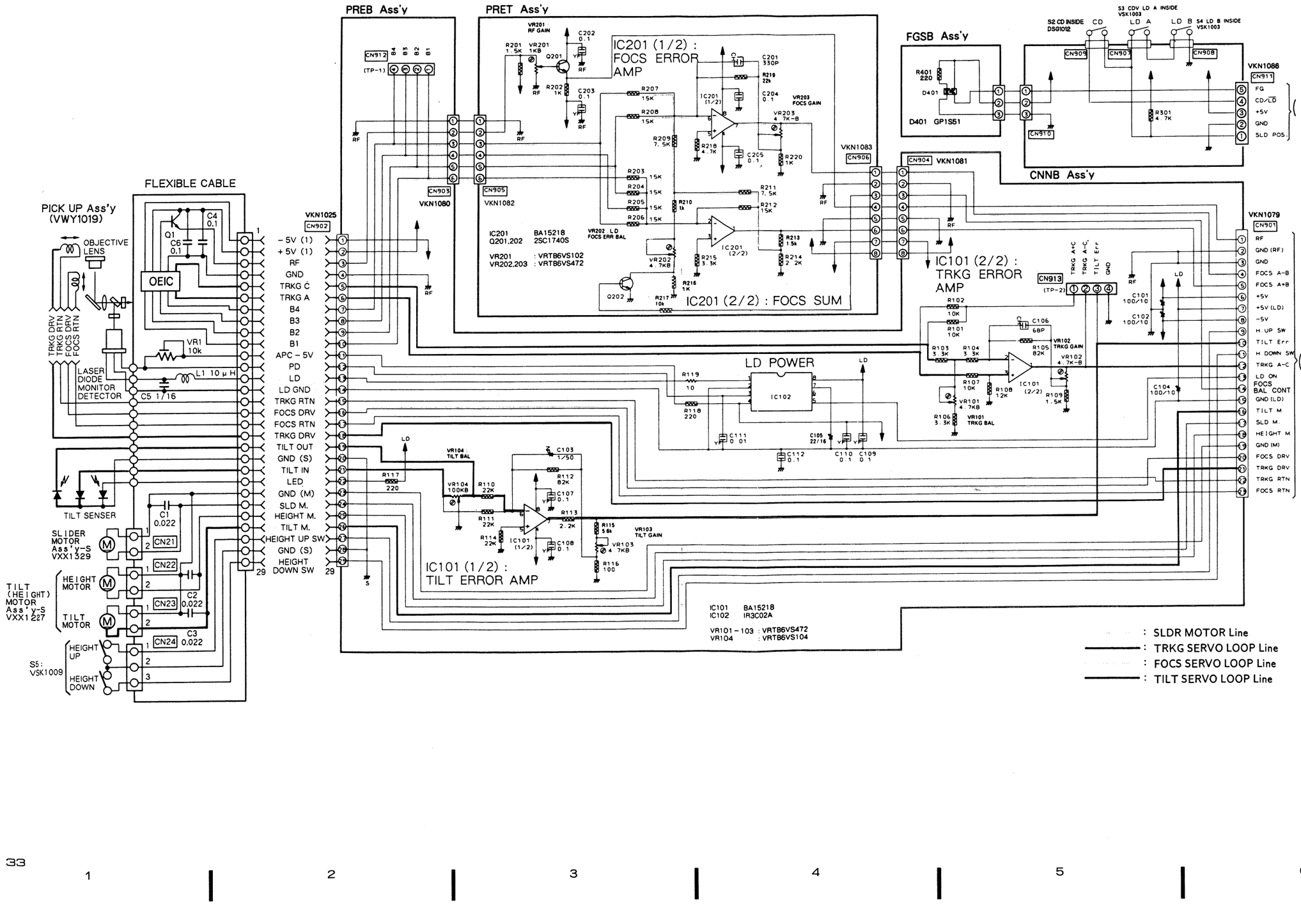
IC1 : NJM4558S
IC2 : TA8413P
IC3 : ICP-N20

Q1, 10, 14 : 2SA933S
Q2, 7, 11, 13 : 2SC1740S
Q20, Q26 : UN4112
Q5, 6, 9, 21, 22 : UN4212
Q3 : 2SC1627
Q4 : 2SD1267
Q8 : 2SC1847
Q12 : 2SD2012
Q15 : 2SB1375
Q16, 18 : 2SB1185
Q17, 19 : 2SD1762
Q23~25 : 2SA817
Q302 : STA302A
Q303 : STA303A

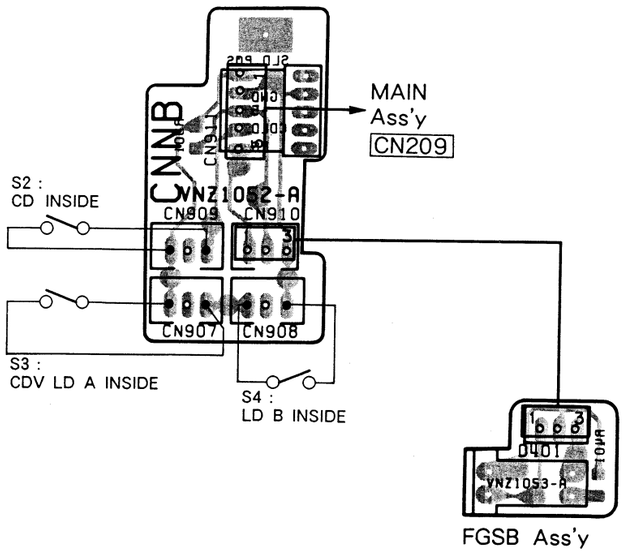
D2, 8, 14, 15, 20, 21, 24 : 1SR139-100
D3~6, 9~12, 22 : 1SS254
D1 : S2K20
D7 : HZS5.1NB2
D13 : HZS5.1NB1
D16 : MTZJ20A
D17 : MTZJ27C
D18 : RBA-406B
D19 : D3SBA20
D23 : HZS5.6NB2
D25~27 : S3V10

L1 : VTT1016
C25 : VCH1055
C35~37, 40~42 : VCH1091
FU1, 2 : VEK-018
FU3, 4 : VEK-022

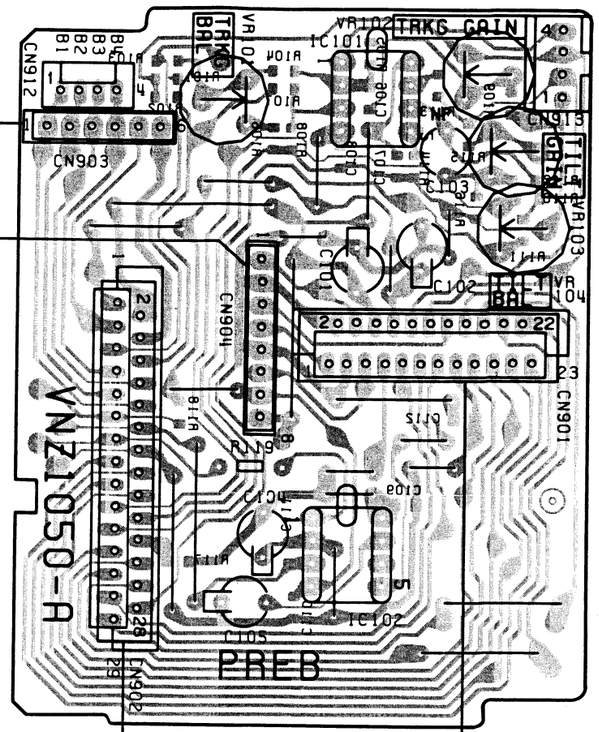
5.3 PREB, PRET, CNNB, FGSB, PICKUP ASSEMBLY



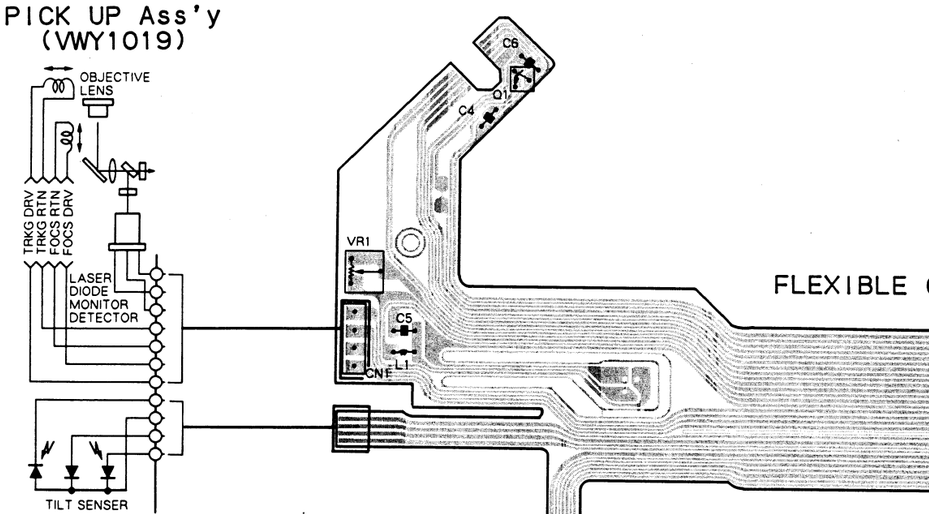
CNNB Ass'y

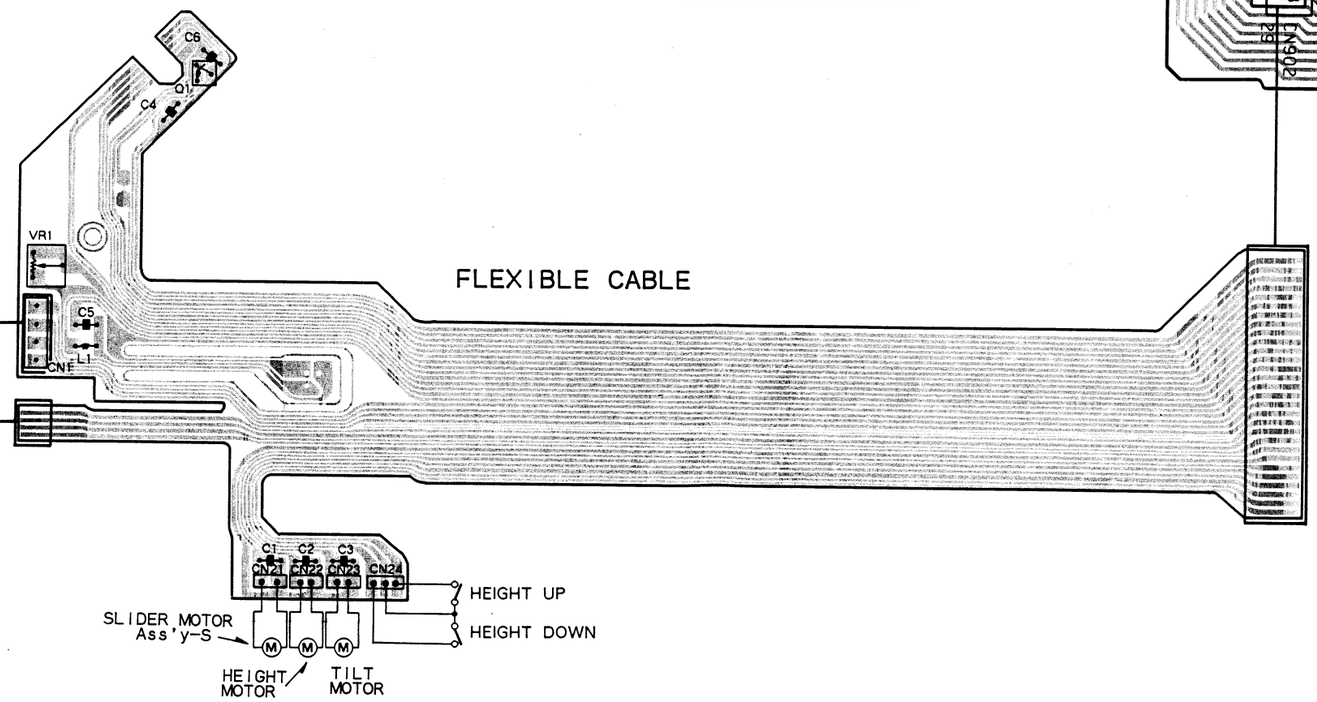


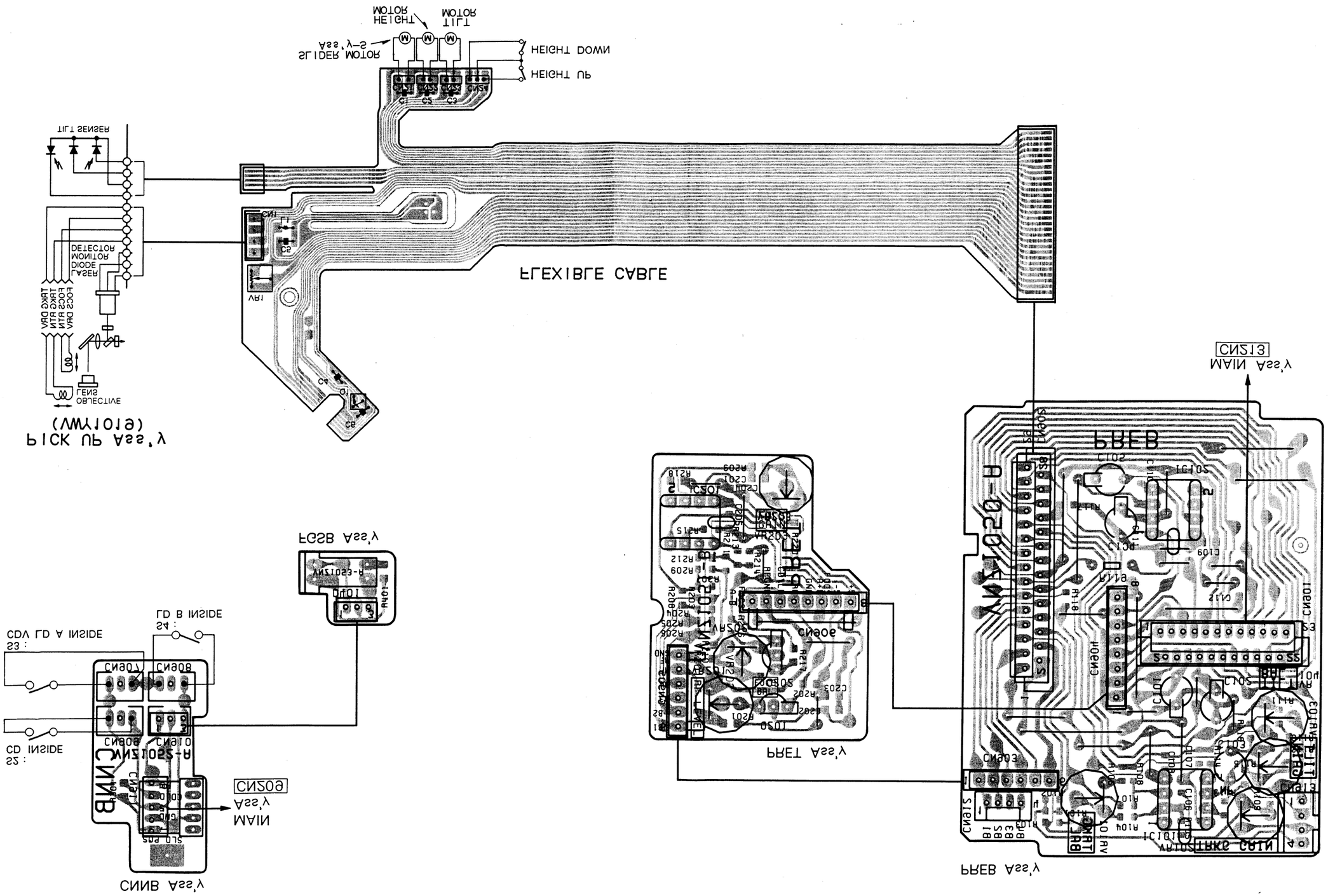
PREB Ass'y



PICK UP Ass'y
(VWY1019)






SLIDER MOTOR
ASS'Y-2
MOTOR HEIGHT
MOTOR TILT
HEIGHT DOWN
HEIGHT UP
FLEXIBLE CABLE
TILT SENSER
LENS OBJECTIVE
LASER DIODE MONITOR DETECTOR
VRD OUT
VTR OUT
VTR CONT
VRD CONT
MAIN ASS'Y
CN504
PICK UP ASS'Y
(WW1013)
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
CN12
CN13
CN14
CN15
CN16
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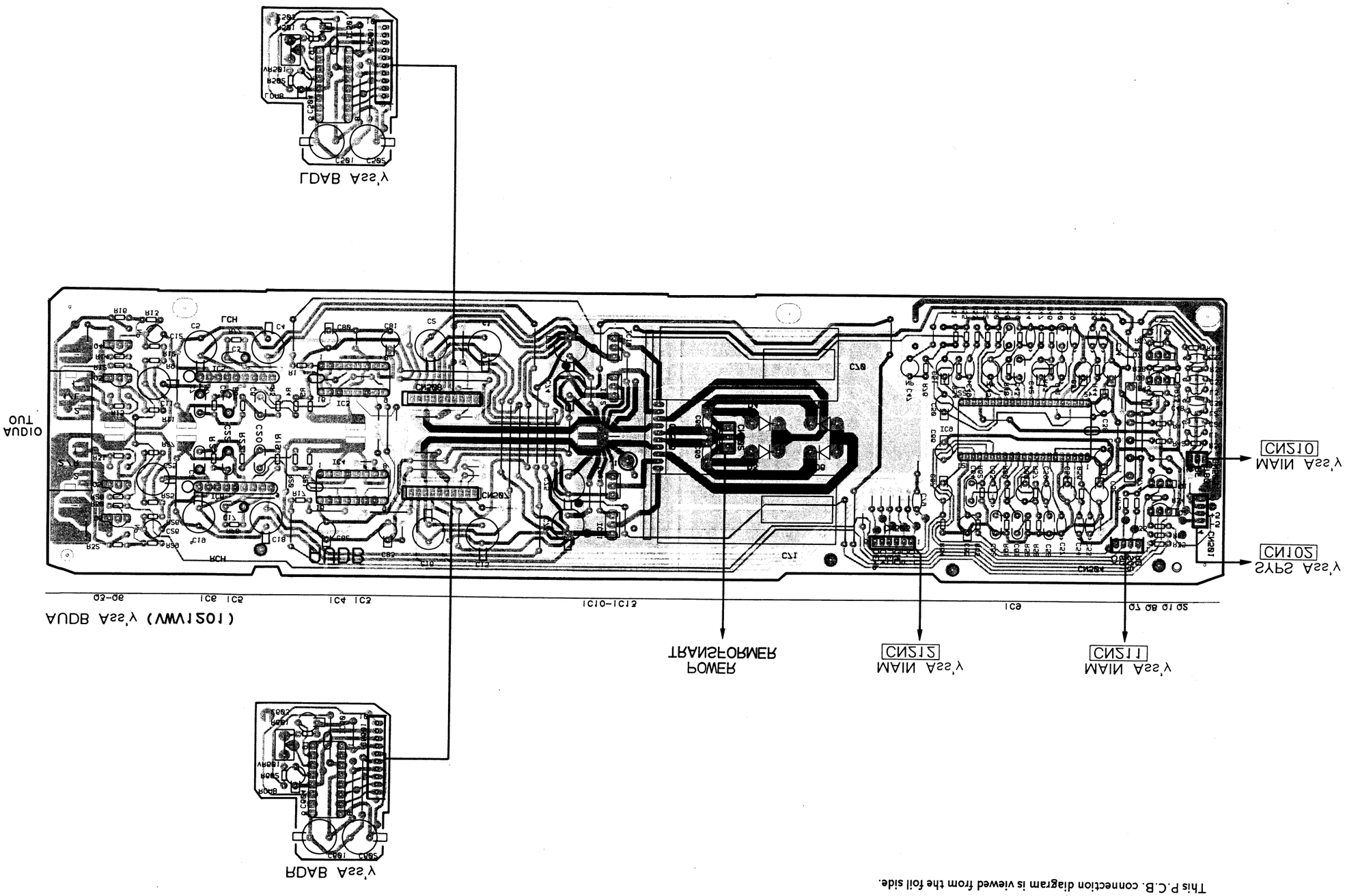
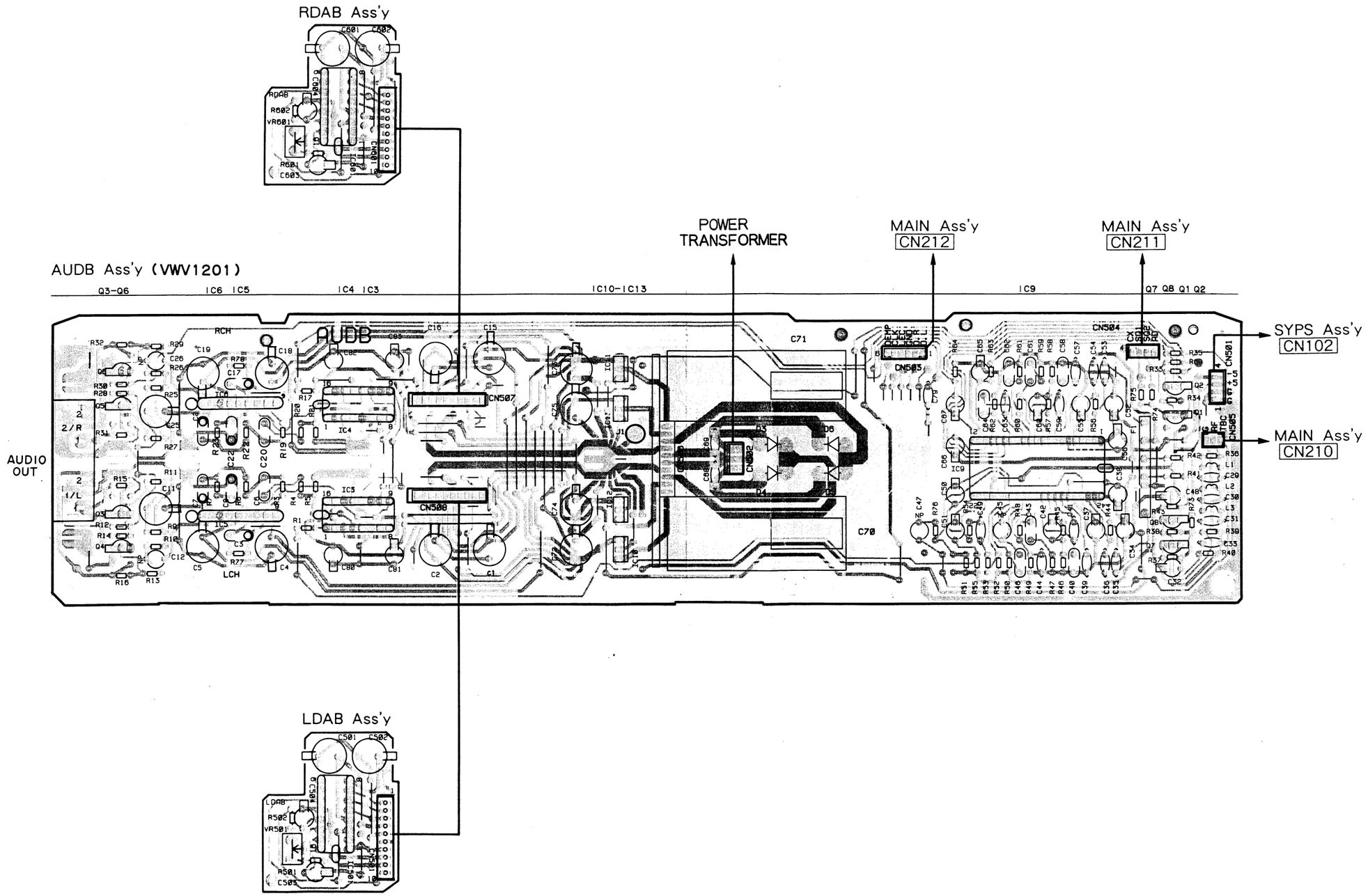
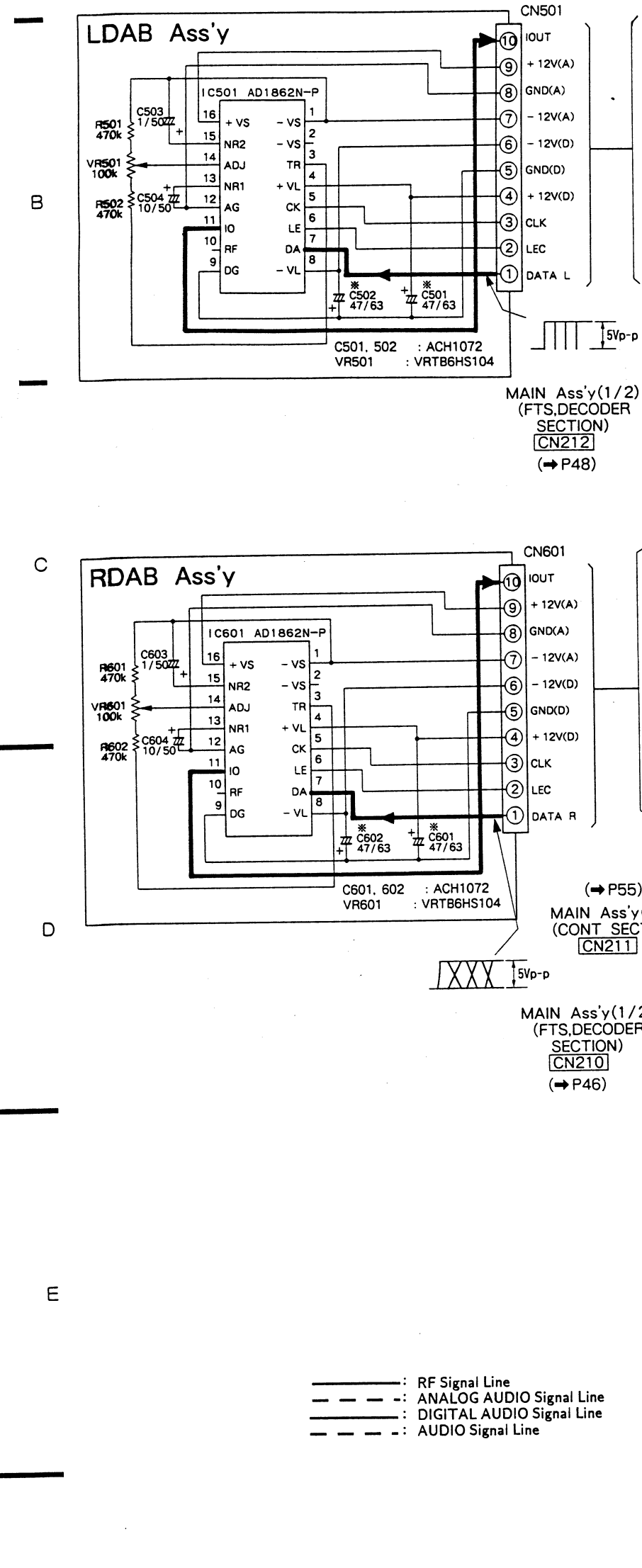
2.4 AUDB, RDAB, LDAB ASSEMBLY



This P.C.B. connection diagram is viewed from the foil side.

5.4 AUDB, RDAB, LDAB ASSEMBLY

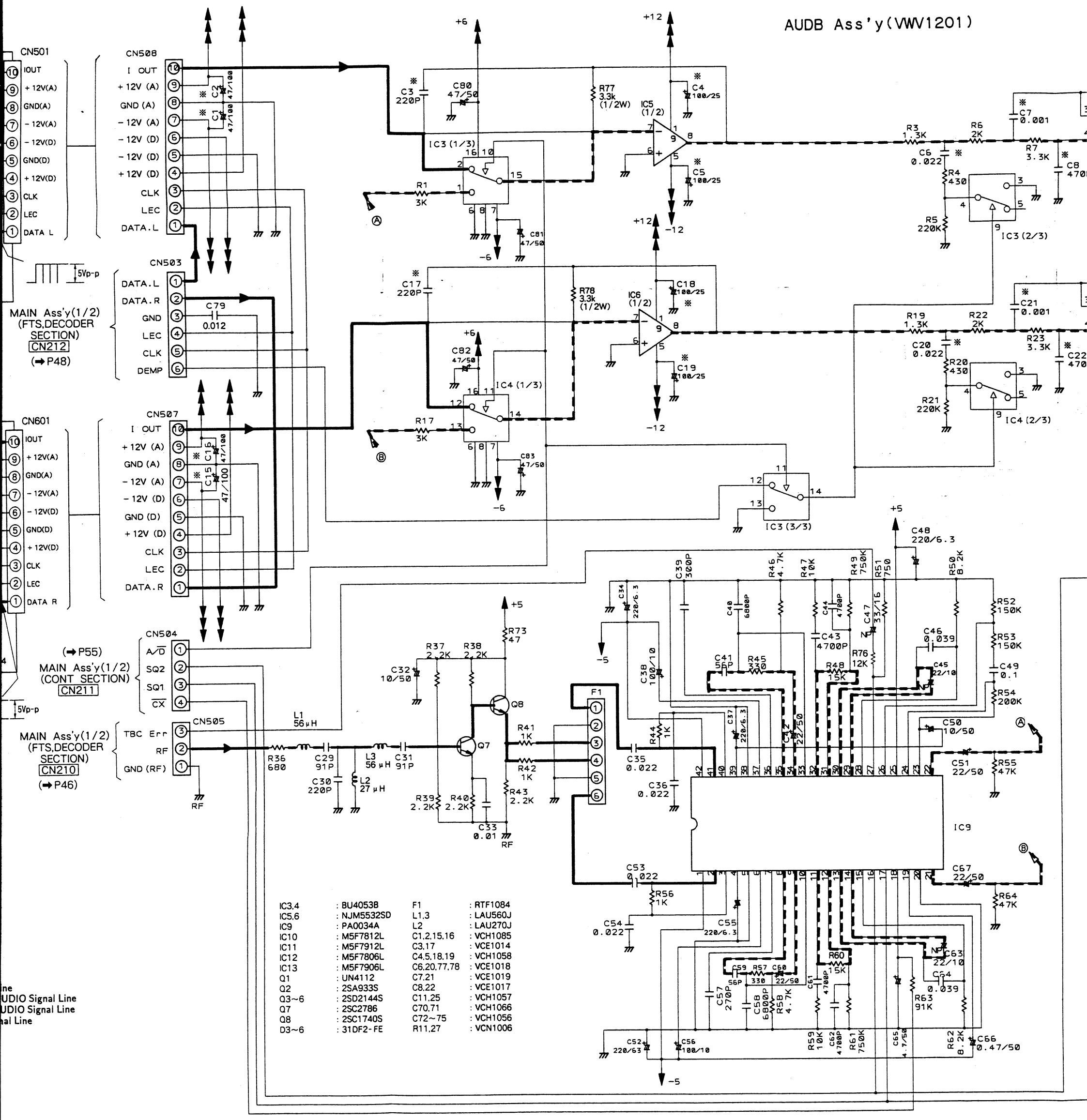




IC3,4	: BU4053B	F1	: RTF1084
IC5,6	: NJM5532SD	L1,3	: LAU560J
IC9	: PA0034A	L2	: LAU270J
IC10	: M5F7812L	C1,2,15,16	: VCH1085
IC11	: M5F7912L	C3,17	: VCE1014
IC12	: M5F7806L	C4,5,18,19	: VCH1058
IC13	: M5F7906L	C6,20,77,78	: VCE1018
Q1	: UN4112	C7,21	: VCE1019
Q2	: 2SA933S	C8,22	: VCE1017
Q3~6	: 2SD2144S	C11,25	: VCH1057
Q7	: 2SC2786	C70,71	: VCH1066
Q8	: 2SC1740S	C72~75	: VCH1056
D3~6	: 31DF2-FE	R11,27	: VCN1006

———: RF Signal Line
— — — —: ANALOG AUDIO Signal Line
———: DIGITAL AUDIO Signal Line
— — — —: AUDIO Signal Line

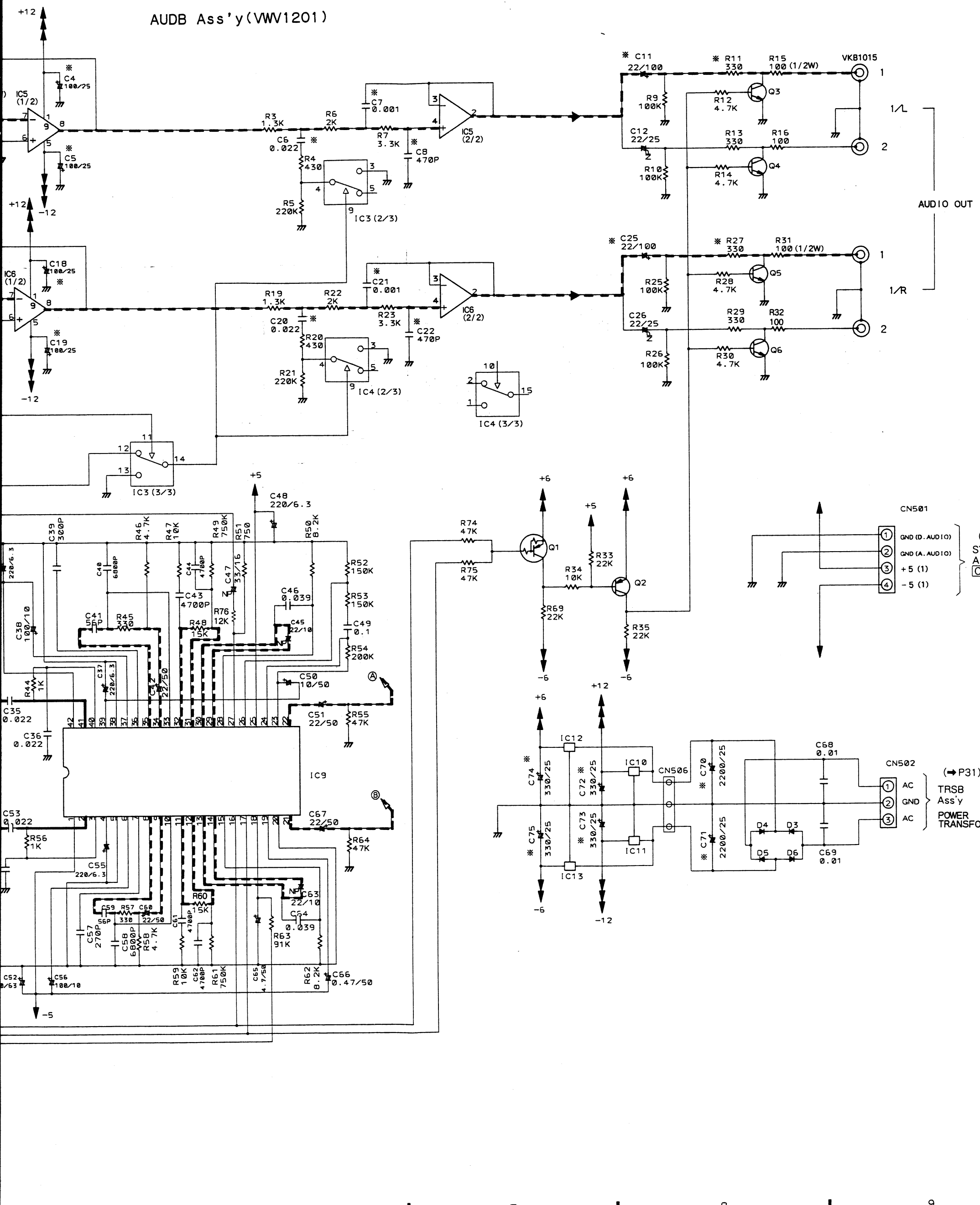
AUDB Ass'y(VWV1201)



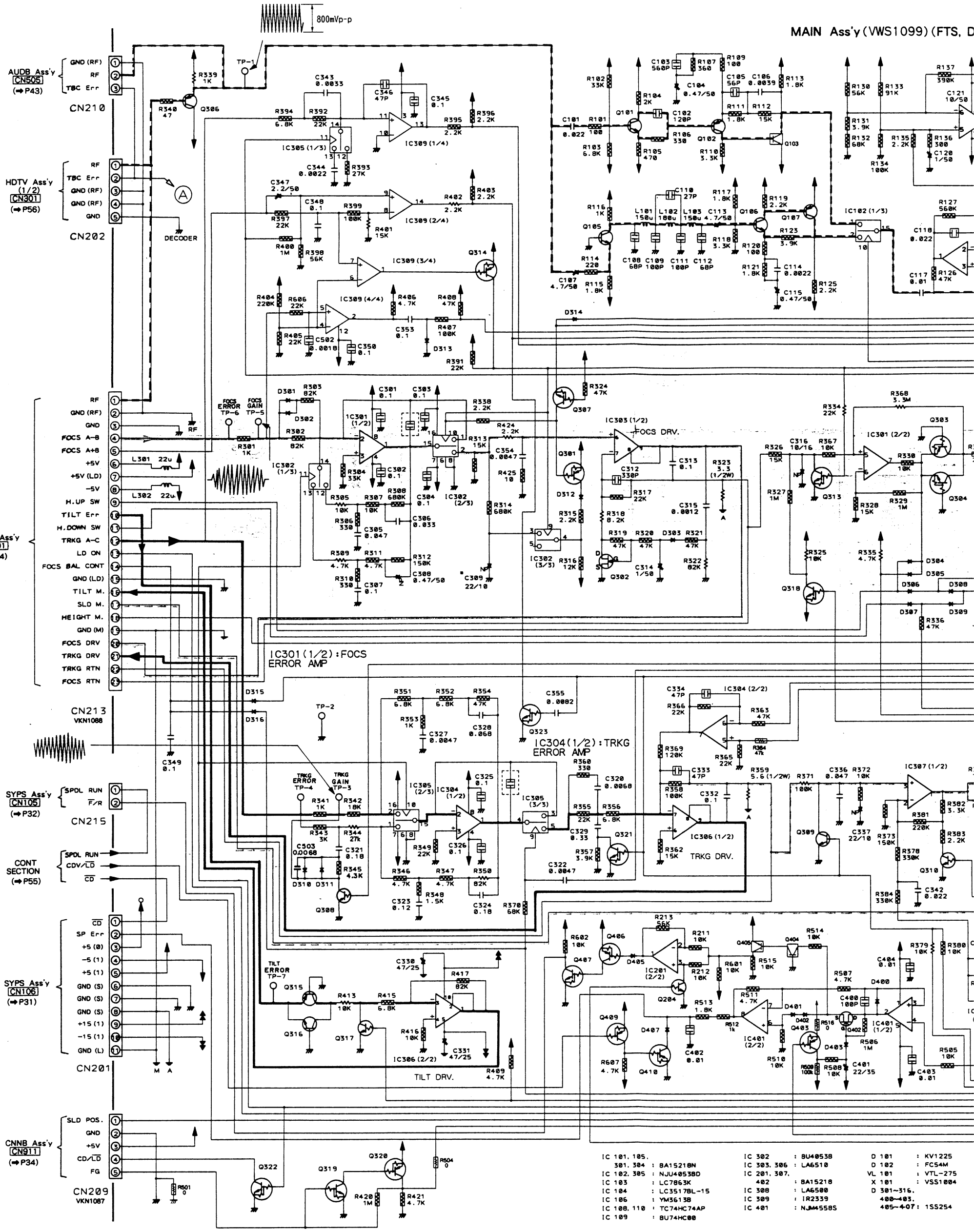
IC3,4	: BU4053B	F1	: RTF1084
IC5,6	: NJM5532SD	L1,3	: LAU560J
IC9	: PA0034A	L2	: LAU270J
IC10	: M5F7812L	C1,2,15,16	: VCH1085
IC11	: M5F7912L	C3,17	: VCE1014
IC12	: M5F7806L	C4,5,18,19	: VCH1058
IC13	: M5F7906L	C6,20,77,78	: VCE1018
Q1	: UN4112	C7,21	: VCE1019
Q2	: 2SA933S	C8,22	: VCE1017
Q3~6	: 2SD2144S	C11,25	: VCH1057
Q7	: 2SC2786	C70,71	: VCH1066
Q8	: 2SC1740S	C72~75	: VCH1056
D3~6	: 31DF2-FE	R11,27	: VCN1006

ne
UDIO Signal Line
UDIO Signal Line
al Line

AUDB Ass'y(VWV1201)



5.5 MAIN ASSEMBLY(FTS, DECODER SECTION)



MAIN Ass'y (VWS1099) (FTS, DECODER SECTION)

Vp-p

:FOCS

IC304 (1/2) : TRKG ERROR AMP

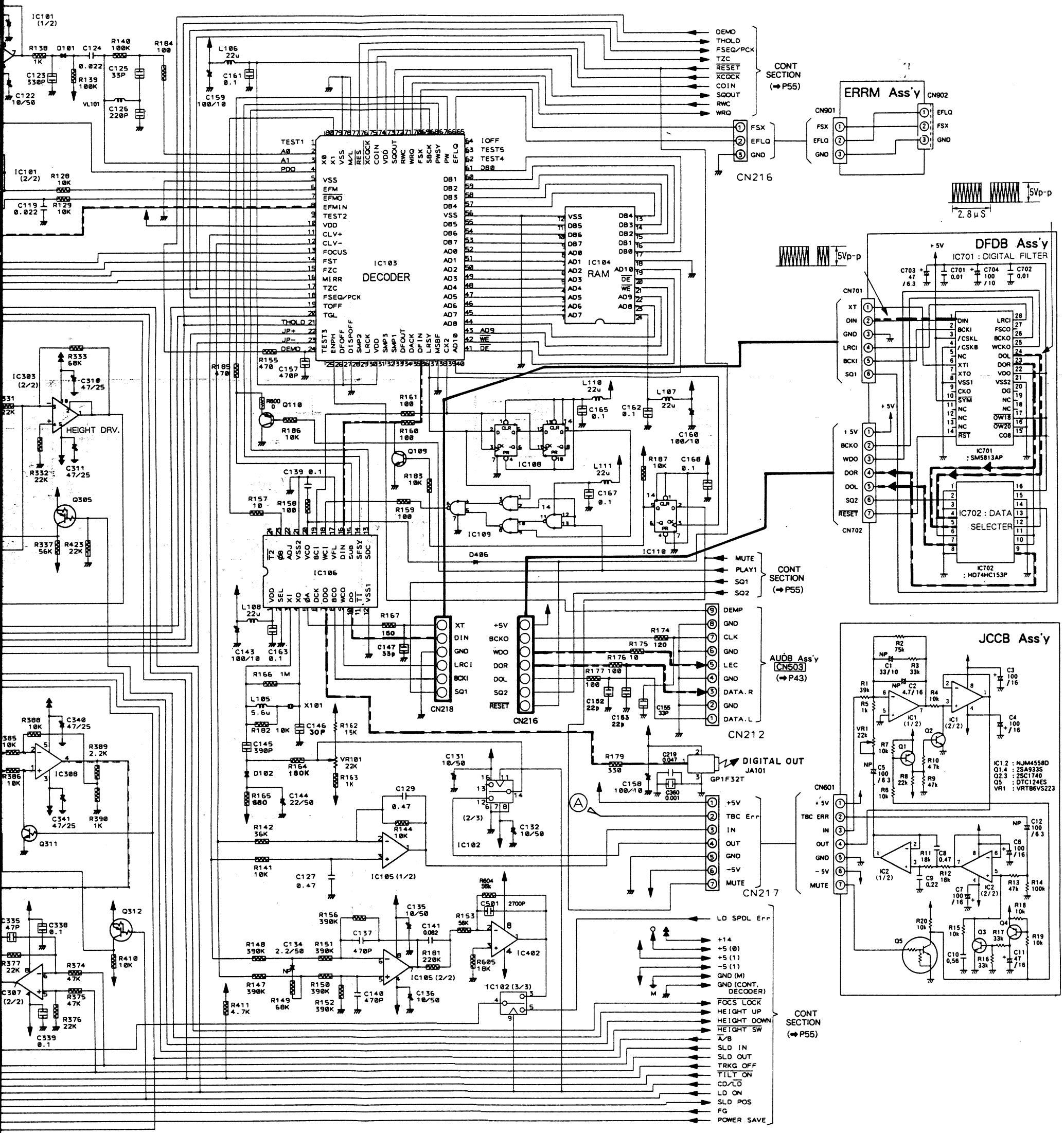
TRKG GAIN TP-3

TILT DRV.

IC 101, 105, 301, 304	: BA15218N	IC 302	: BU4053B	D 101	: KV1225	Q 101, 105, 106, 109, 309, 316	: 2SC1740S
IC 102, 305	: NJU4053BD	IC 303, 306	: LA6510	D 102	: FC54M	Q 102, 107, 110, 306, 315	: 2SA933S
IC 103	: LC7863K	IC 201, 307, 402	: BA15218	VL 101	: VTL-275	Q 301, 303, 305, 312, 314	: UN4112
IC 104	: LC35178L-15	IC 308	: LA6500	X 101	: VSS1004	Q 302, 402	: 2SK184
IC 106	: YM3613B	IC 309	: IR2339	D 301~316, 400~403, 405~407	: 1SS254	Q 304, 307, 313, 318, 321	: UN4212
IC 108, 110	: TC74HC74AP	IC 401	: NJM4558S				
IC 109	: BU74HC00						

Q 320, 403, 406, 409, 410	: DTA124EK	C309	: VCH1067
Q 319, 322, 323, 407	: DTC124EK	L101, 103	: LAU151K
Q 405	: 2SA1037K	L102	: LAU181J
Q 103, 404	: 2SC2412K	L105	: LAU5R6J
Q 204, 308, 310, 311, 317	: UN4215	L106, 107, 110, 111, L108, 301, 302	: LFA220J : LAU220J

ECODER SECTION)

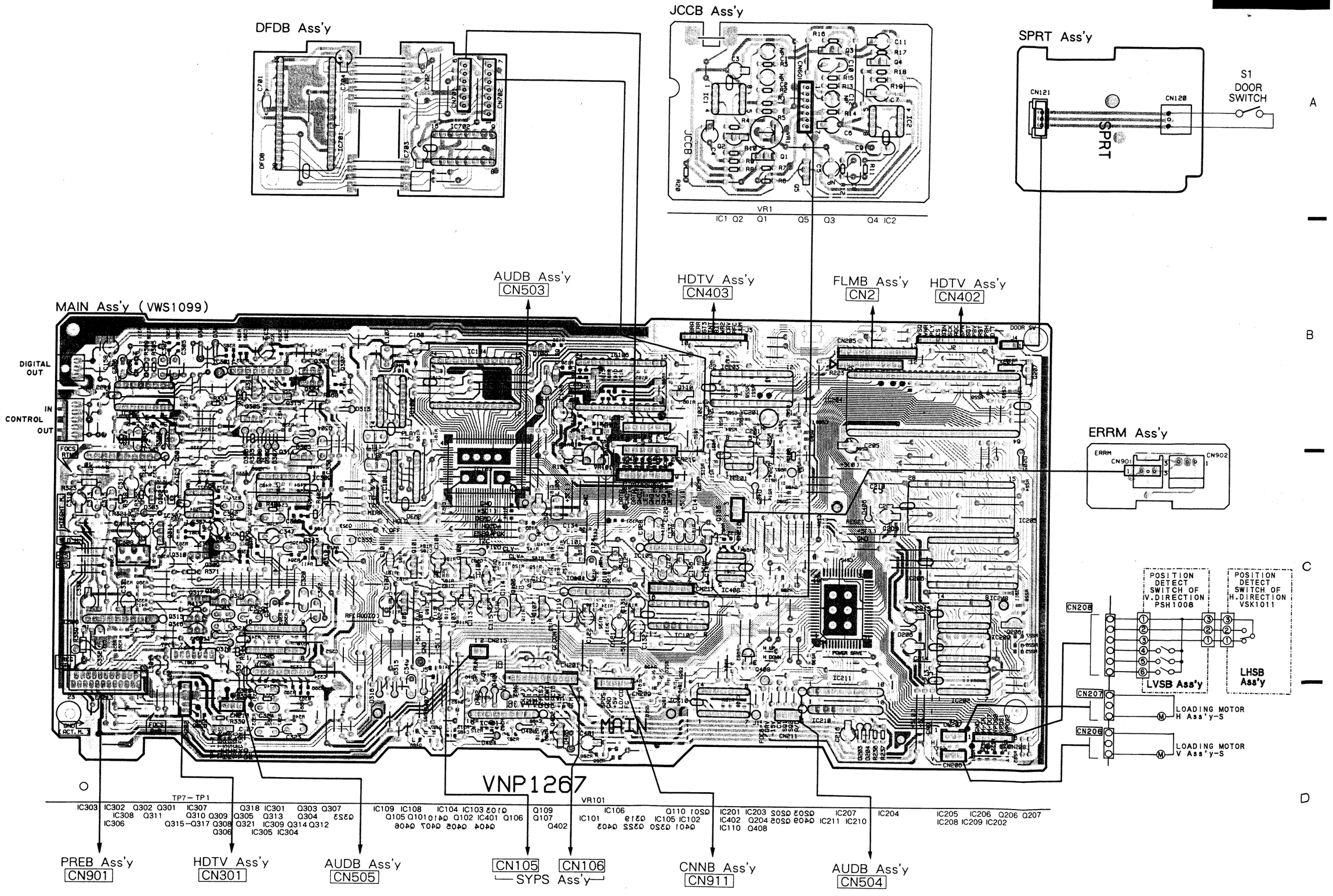


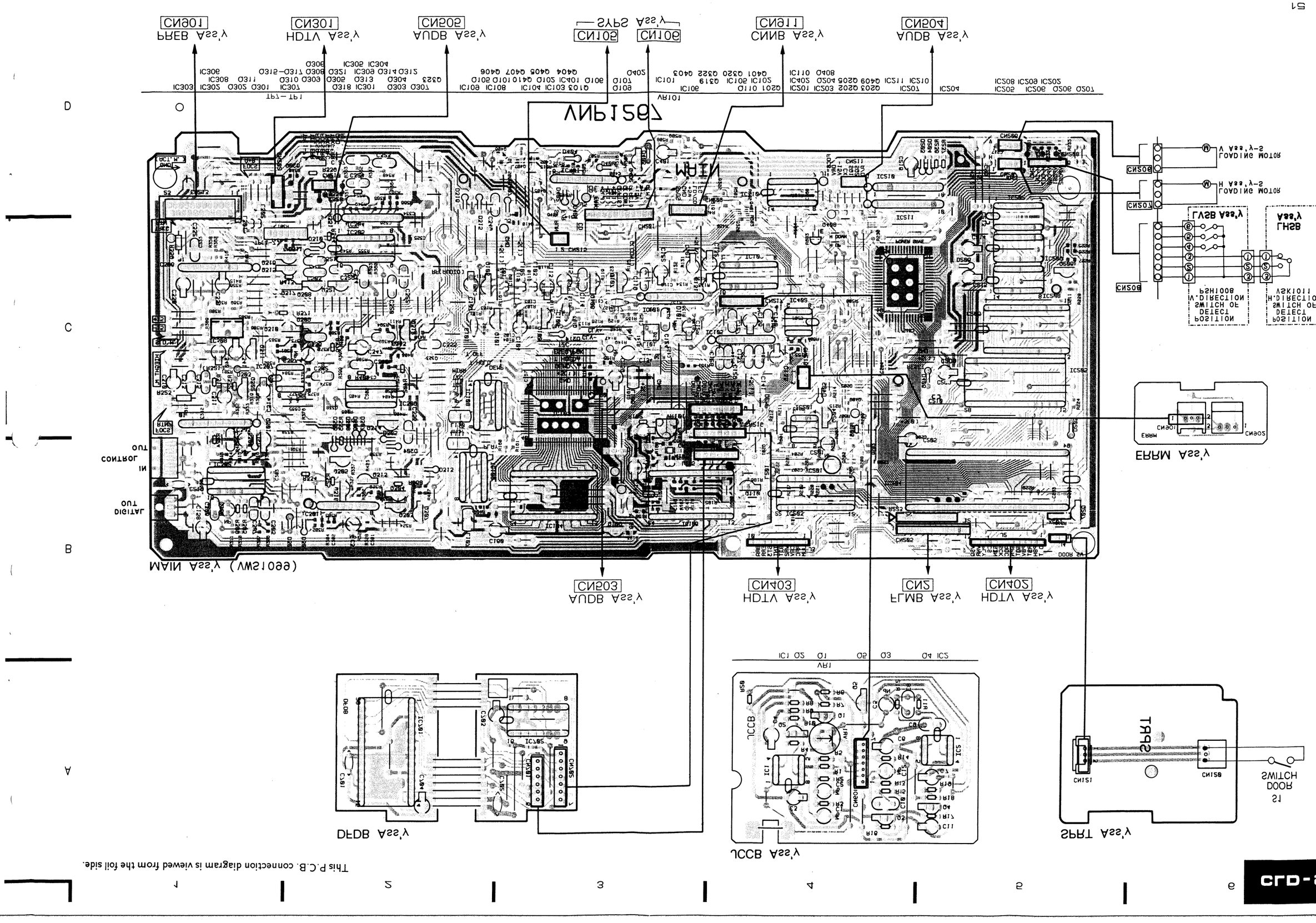
Q 101, 105, 106, 109, 309, 316 : 2SC1740S
Q 102, 107, 110, 306, 315 : 2SA933S
Q 301, 303, 305, 312, 314 : UN4112
Q 302, 402 : 2SK184
Q 304, 307, 313 318, 321 : UN4212

Q 320, 403, 406, 409, 410 : DTA124EK
Q 319, 322, 323, 407 : DTC124EK
Q 405 : 2SA1037K
Q 103, 404 : 2SC2412K
Q 204, 308, 310, 311, 317 : UN4215

C309 : VCH1067
L101,103 : LAU151K
L102 : LAU181J
L105 : LAU5R6J
L106,107,110,111 : LFA220J
L108,301,302 : LAU220J

: RF Signal(EFM Signal) Line
: DIGITAL DATA
: TILT ERROR Line
: FOCS SERVO LOOP Line
: SLDR SERVO Line
: TRKG SERVO LOOP Line
: DIGITAL AUDIO Signal Line


DFDB Ass'y
JCCB Ass'y
SPRT Ass'y
S1
DOOR
SWITCH
CN121
CN120
SPRT
AUDB Ass'y
CN503
HDTV Ass'y
CN403
FLMB Ass'y
CN2
HDTV Ass'y
CN402
MAIN Ass'y (VWS1099)
DIGITAL
OUT
IN
CONTROL
OUT
ERRM Ass'y
ERRM
CN901
CN902
POSITION
DETECT
SWITCH OF
V.DIRECTION
PSH1008
POSITION
DETECT
SWITCH OF
H.DIRECTION
VSK1011
CN208
CN207
CN206
LVSB Ass'y
LHSB
Ass'y
LOADING MOTOR
H Ass'y-S
LOADING MOTOR
V Ass'y-S
VNP1267
MAIN
PREB Ass'y
CN901
HDTV Ass'y
CN301
AUDB Ass'y
CN505
CN105
CN106
SYPS Ass'y
CNNB Ass'y
CN911
AUDB Ass'y
CN504



This P.C.B. connection diagram is viewed from the foil side.

5.6 MAIN ASSEMBLY(CONT SECTION)

MAIN Ass'y (VWS1099) (CONT SECTION)

(➡P57) HDTV Ass'y (1/2) CN403
CD/LD
BR/AC
SPDL Err
STB3
INTP
BIT
WRE2
CAV/CLV
RF CORR
JUMP TRIG
J3

(➡P56) HDTV Ass'y (1/2) CN402
VSQ
VNR
PLAY
CS
SIN
SCK
ACC CONT
SPDL LOCK
SCAN CONT
PBV
RESET
PBH
DATA
J2

SPRT Ass'y
CN121
GND
DOOR SW
J4
CN120
S1 :DOOR SW VSK1014

(➡P68) FLMB Ass'y CN2
POWER ON
RESET
STB2
ACK
D0
D1
D2
D3
ATN2
IR
SEL IR
GND
CN205

CONTROL
IN
OUT
VKN1034

R238 10K
Q201
R204 10K
R202 39k
R203 560K
C201 22/10
IC201 (1/2)
R214 10K
R205 56K
R206 10K
R208 120K
R209 10K
Q202
Q203
R207 22K
R210 22K
8/12
CDV/LD

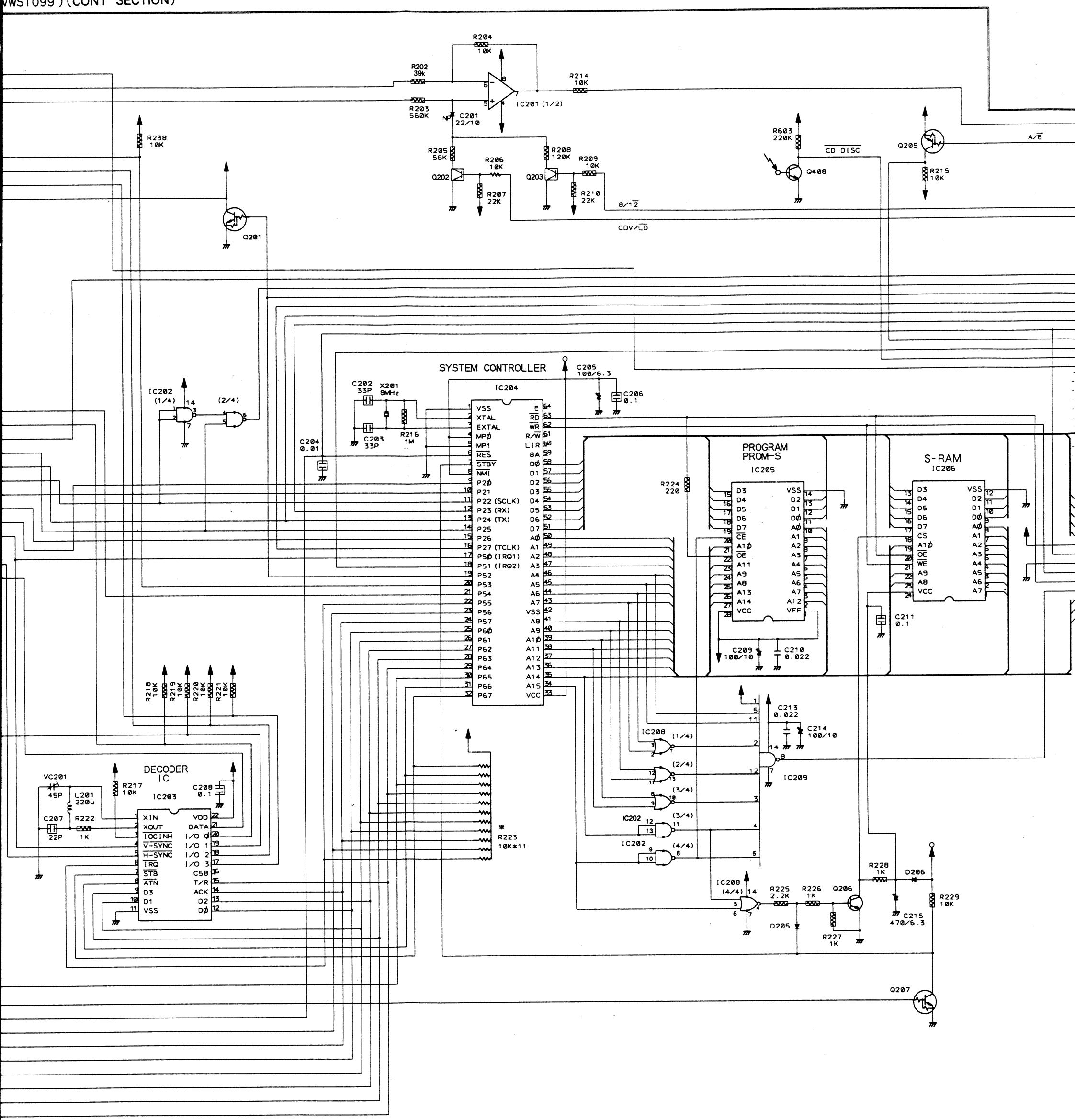
IC202 (1/4) (2/4)
C204 0.01
C202 33P
X201 8MHz
C203 33P
R216 1M
SYSTEM CONTROLLER
IC204
C205 100/6.3
C206 0.1
VSS XTAL EXTAL MP0 MP1 RES STBY NMI P20 P21 P22 (SCLK) P23 (RX) P24 (TX) P25 P26 P27 (TCLK) P50 (IRQ1) P51 (IRQ2) P52 P53 P54 P55 P56 P57 P60 P61 P62 P63 P64 P65 P66 P67 VCC
E RD WR R/W LIR BA D0 D1 D2 D3 D4 D5 D6 D7 A0 A1 A2 A3 A4 A5 A6 A7 VSS A8 A9 A10 A11 A12 A13 A14 A15 VCC

R218 10K
R219 10K
R220 10K
R221 10K
R223 10K*11

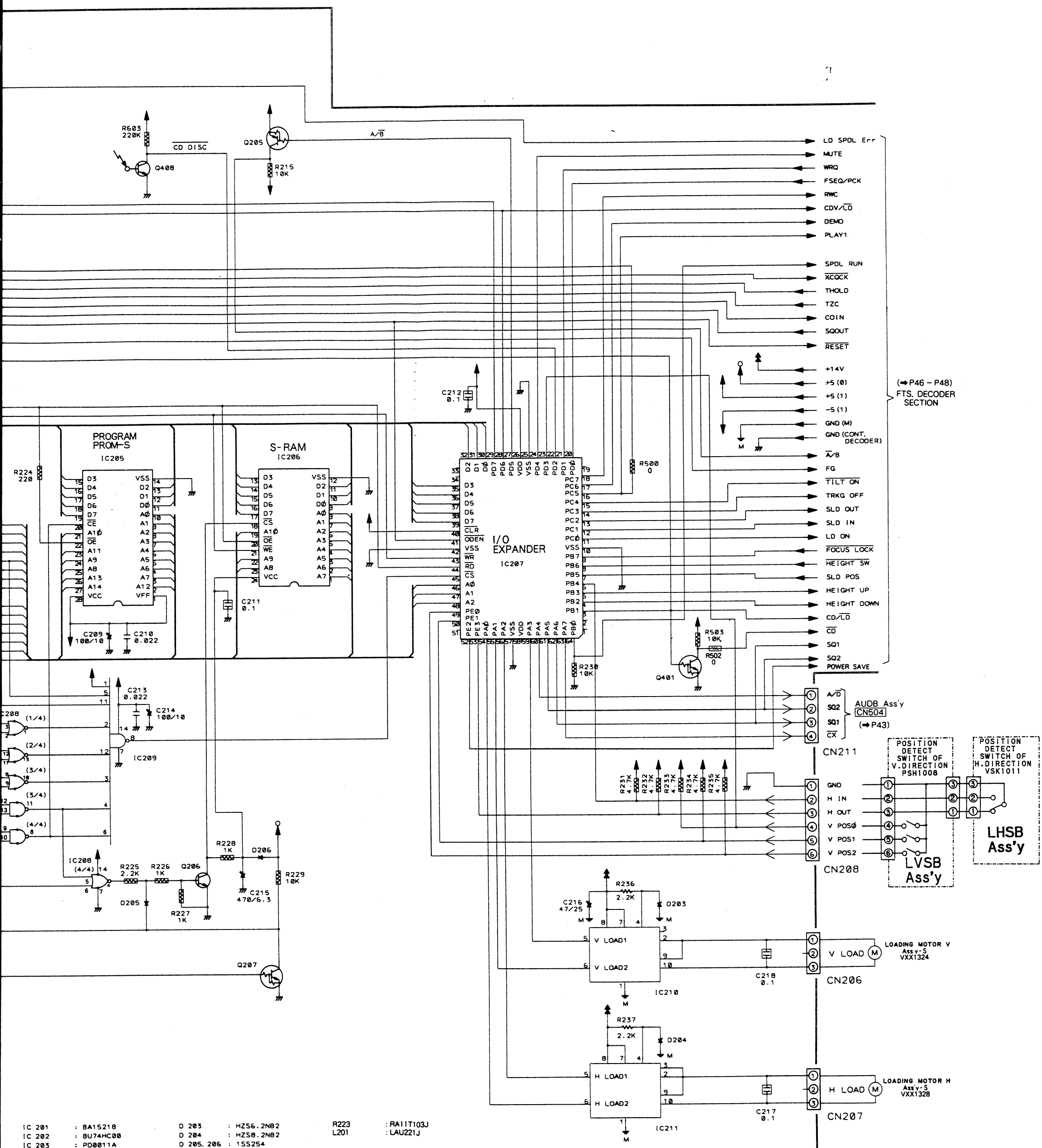
DECODER IC
IC203
VC201 45P
L201 220u
R217 10K
C208 0.1
C207 22P
R222 1K
XIN XOUT TOCINH V-SYNC H-SYNC IRQ STB ATN D3 D1 VSS
VDD DATA I/O 0 I/O 1 I/O 2 I/O 3 C58 T/R ACK D2 D0

IC202

VWS1099) (CONT SECTION)



IC 201	: BA15218	D 203	: HZS6.2NB2	R223	: RA11T1(
IC 202	: BU74HC00	D 204	: HZS8.2NB2	L201	: LAU221,
IC 203	: PD0011A	D 205. 206	: 1SS254		
IC 204	: HD63B03YP	Q 201. 401	: DTC124EK		
IC 205	: PDK012A	Q 202. 203	: 2SC2412K		
IC 206	: LC35178L-15	Q 205	: DTA124EK		
IC 207	: CXD1095Q	Q 206	: 2SC2786		
IC 208	: BU74HC02	Q 207	: UN4212-T		
IC 209	: TC74HC30AP	Q 408	: RPT-34PB3F		
IC 210. 211	: TA7291P	VC 201	: VCM-003		
		X 201	: KBR-8.0M		



IC 201	: BA15218	D 203	: HZS6.2NB2	R223	: RA11T103J
IC 202	: BU74HC00	D 204	: HZS8.2NB2	L201	: LAU221J
IC 203	: PD0011A	D 205. 206	: 1SS254		
IC 204	: HD63B03YP	Q 201. 401	: DTC124EK		
IC 205	: PDK012A	Q 202. 203	: 2SC2412K		
IC 206	: LC3517BL-15	Q 205	: DTA124EK		
IC 207	: CXD1095Q	Q 206	: 2SC2786		
IC 208	: BU74HC02	Q 207	: UN4212-T		
IC 209	: TC74HC30AP	Q 408	: RPT-34PB3F		
IC 210. 211	: TA7291P	VC 201	: VCM-003		
		X 201	: KBR-8.0M		

5.7 HDTV ASSEMBLY(1/2)

HDTV Ass'y (1/2)

(➡P53) MAIN Ass'y (CONT SECTION) J2

(➡P65) HDTV Ass'y (2/2)

(➡P46) MAIN Ass'y (FTS, DECODER) SECTION CN202

(➡P65 – P67) HDTV Ass'y (2/2)

CN402: DATA, PB H, RESET, PB V, SCAN CONT, SPDL LOCK, ACC CONT, SCK, SIN, CS, PLAY, VNR, VSQ, V RESET, BRANKING SW, ACBR, SPDL ERR, DISP V, DISP H, 4FSC, VNR, VSQ

J4, J1: DATA, PB H, PB V, RF CORR, DOC INH, TBC LOCK, DET, PLAY

CN301: RF, TBC ERR, GND (NR), GND (RF), GND (RF)

TBC ERR, VIDEO for A/D, CAV/CLV

SPDL ERR AMP. (IC601 NJM4558D)

SPDL ERR OUT / SPDL ERR

ACCEL / BRAKE (IC602 IR9393)

VIDEO BUFFER

D 103 : 1SS254

Q 101, 102, 105, 112 : 2SA933S

Q 103, 104, 106, 107, 108, 109, 110, 111, 113 : 2SC1740S

VR101 : VRTB6VS221
VR102 : VRTB6VS222
VR103 : VRTB6VS102
VR104 : VRTG6VS472
L101,115 : LAU560J
L102 : LAU220J
L103 – 105,113 : LAU120J
L106,108 : LAU470J
L107 : LAU620J
L109,111 : LAU221J
L110 : LAU101J
L112 : LAU121J
L114 : LAU180J
L116 : LRA561K

Q101,102: RF AMP

Q112: RF BUFFER

DETECTOR LEVEL ADJ

1H DELAY (IC103 PM0001)

1H DELAY VIDEO LEVEL ADJ

Q103: VIDEO BUFFER

Q106: VIDEO BUFFER

VIDEO PROCESSOR

IC101 PA5010

SWITCH SELECT

RF CORR, LIM, D-MMV, X, LIM, DOS F-SENS, PULSES STRETCH, ON/OFF

V SYNC SEP, V PULSE STRETCH, COMP SYNC SEP, DATA SEP, PED CLAMP, CLAMP PULSE GEN, HARD CLAMP, H-PULSE PRESS

VPS ERROR LEVEL ADJ

Q111 : H SYNC SHAPER

D 103 : 1SS254

Q 101, 102, 105, 112 : 2SA933S

Q 103, 104, 106, 107, 108, 109, 110, 111, 113 : 2SC1740S

VR101 : VRTB6VS221
VR102 : VRTB6VS222
VR103 : VRTB6VS102
VR104 : VRTG6VS472
L101,115 : LAU560J
L102 : LAU220J
L103 – 105,113: LAU120J

L106,108 : LAU470J
L107 : LAU620J
L109,111 : LAU221J
L110 : LAU101J
L112 : LAU121J
L114 : LAU180J
L116 : LRA561K

SPDL ERR AMP.

SPDL ERR

SPDL ERR OUT

IC601 NJM4558D

VIDEO BUFFER

ACCEL

BRAKE

IR9393

IC602

Q112: RF BUFFER

Q103: VIDEO BUFFER

Q104,105: VIDEO BUFFER

Q106: VIDEO BUFFER

Q107: VIDEO AMP
Q108: VIDEO BUFFER

Q109,110: VIDEO BUFFER

Q111: H SYNC SHAPER

DETECTOR LEVEL ADJ

1H DELAY VIDEO LEVEL ADJ

VIDEO LEVEL ADJ

VPS ERROR LEVEL ADJ

1H DELAY LINE

IC103 PM0001

CCD 112 STAGES

VIDEO PROCESSOR

IC101 PA5010

SWITCH SELECT

RF CORR

LIM

D-MMV

X

COMP SYNC SEP

V SYNC SEP

V PULSE STRETCH

DATA SEP

PED CLAMP

CLAMP PULSE GEN.

HARD CLAMP

H-PULSE PRESS

ON/OFF

DOS F-SENS

PULSES STRETCH

Q509,Q510: VIDEO BUFFER

Q526: VIDEO BUFFER

(➡P67) FSC

HDTV Ass'y (2/2)

VIDEO for TBC (➡P65)

(➡P67) HDTV Ass'y (2/2)

(➡P53) MAIN Ass'y CONT SECTION J3

(➡P31) SYPS Ass'y CN104

PB H with EQ PULSE
VPS ERR
} HDTV Ass'y (2/2) (➡P65)

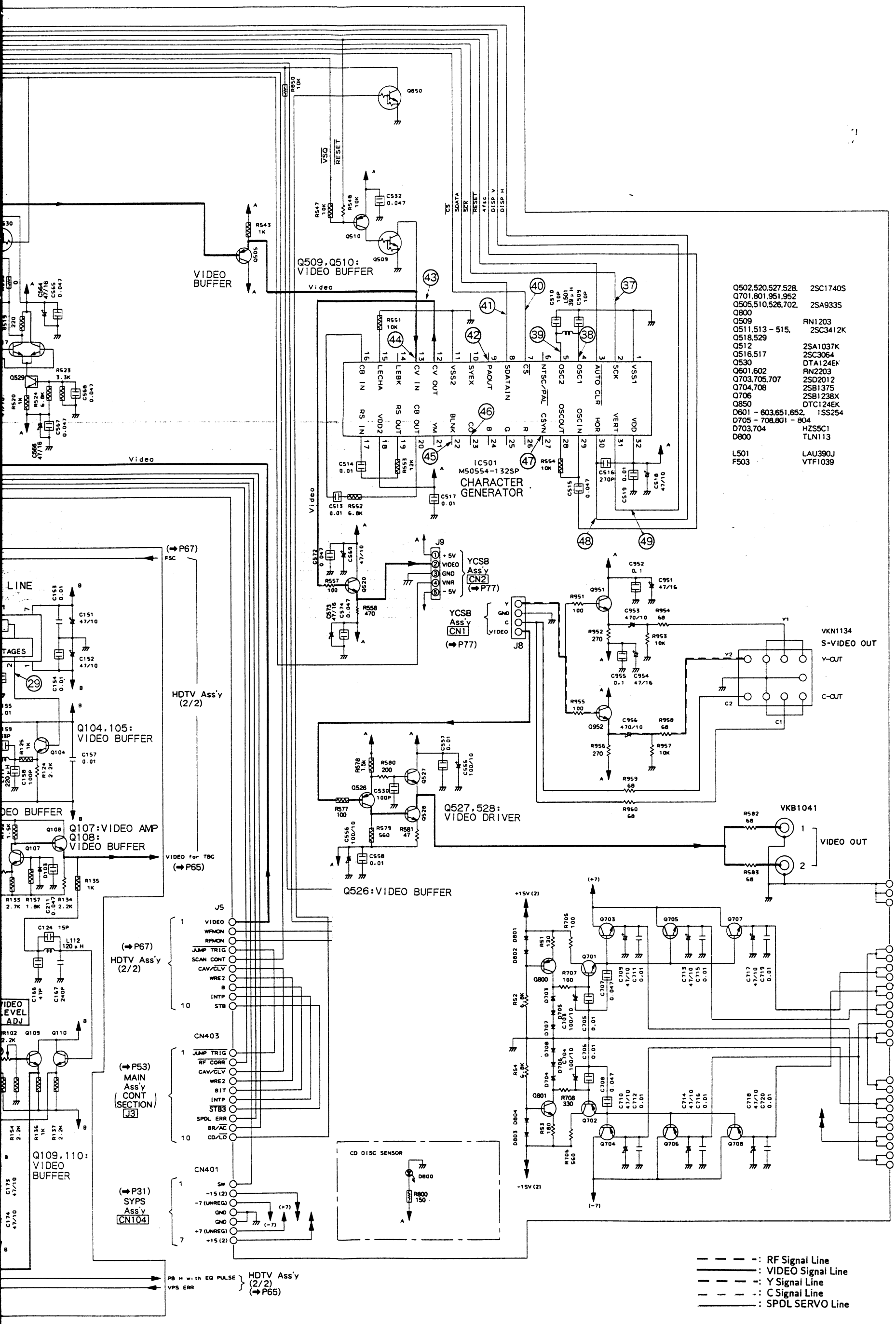
J5

CN403

CN401

CD DISC SENSOR

Video


Q502.520.527.528. 2SC1740S
Q701.801.951.952
Q505.510.526.702. 2SA933S
Q800
Q509 RN1203
Q511.513 - 515. 2SC3412K
Q518.529
Q512 2SA1037K
Q516.517 2SC3064
Q530 DTA124EK
Q601.602 RN2203
Q703.705.707 2SD2012
Q704.708 2SB1375
Q706 2SB1238X
Q850 DTC124EK
D601 - 603.651.652. 1SS254
D705 - 708.801 - 804
D703.704 HZS5C1
D800 TLN113
L501 LAU390J
F503 VTF1039
VIDEO BUFFER
Q509,Q510: VIDEO BUFFER
Video
IC501 M50554-132SP CHARACTER GENERATOR
YCSB Ass'y CN2 (➡P77)
YCSB Ass'y CN1 (➡P77)
J8
VKN1134 S-VIDEO OUT
Y-OUT
C-OUT
Q527,528: VIDEO DRIVER
VKB1041
VIDEO OUT
Q526:VIDEO BUFFER
Q104,105: VIDEO BUFFER
Q107:VIDEO AMP
Q108: VIDEO BUFFER
VIDEO for TBC (➡P65)
HDTV Ass'y (2/2)
(➡P67) HDTV Ass'y (2/2)
(➡P53) MAIN Ass'y CONT SECTION J3
(➡P31) SYPS Ass'y CN104
Q109,110: VIDEO BUFFER
CD DISC SENSOR
(➡P65) HDTV Ass'y (2/2)
PB H with EQ PULSE
VPS ERR
HDTV Ass'y (2/2) (➡P65)
: RF Signal Line
: VIDEO Signal Line
: Y Signal Line
: C Signal Line
: SPDL SERVO Line

Note: All waveforms and voltage tables are measured in the play mode.

IC101
< PA5010 >

Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage
1	− 1.2	17	0	33	*	49	− 1.7
2	5	18	*	34	*	50	− 1.7
3	− 1	19	5	35	*	51	*
4	5	20	1	36	1	52	0
5	1	21	*	37	5	53	− 2
6	5	22	*	38	*	54	5
7	5	23	− 2.5	39	*	55	*
8	*	24	*	40	*	56	− 2
9	5	25	*	41	*	57	*
10	*	26	*	42	*	58	*
11	5	27	0.5	43	0	59	5
12	− 5	28	*	44	*	60	3.8
13	− 5	29	*	45	5	61	− 5
14	0	30	*	46	*	62	− 3.2
15	*	31	*	47	*	63	5
16	− 2	32	− 5	48	− 1.7	64	

IC103
< PM0001 >

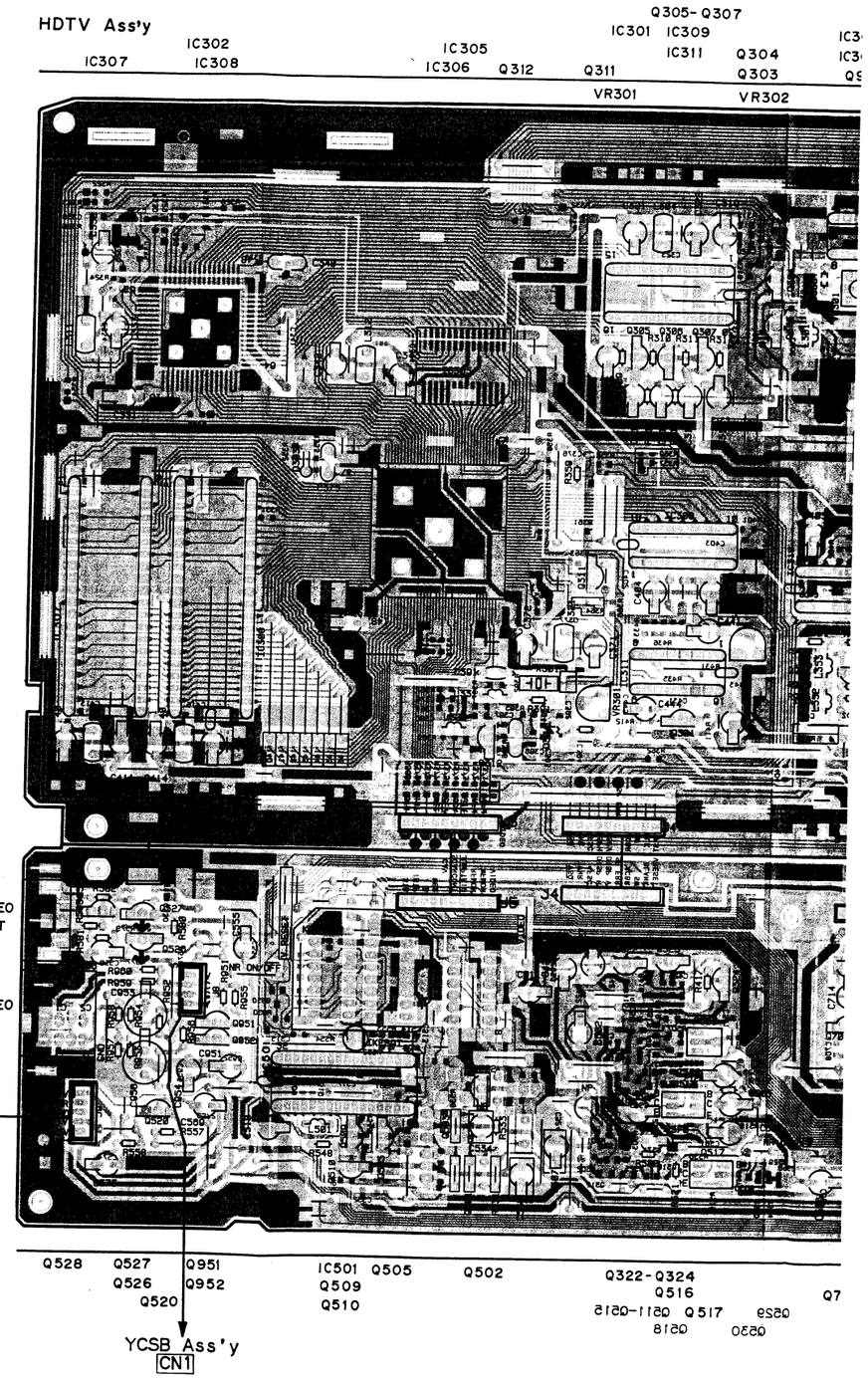
Pin No.	Voltage
1	− 5
2	*
3	− 2
4	− 2
5	*
6	0
7	5
8	*

IC501
< M50554-132SP >

Pin No.	Voltage	Pin No.	Voltage
1	0	17	0.8
2	*	18	5
3	5	19	0
4	*	20	0
5	*	21	0
6	5	22	*
7	*	23	*
8	*	24	0
9	*	25	0
10	5	26	0
11	0	27	*
12	*	28	2
13	*	29	2
14	0.6	30	*
15	3.5	31	*
16	0.6	32	5

HDTV Ass'y

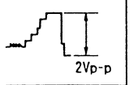
① IC101 - Pin8	⑧ IC101 - Pin25	⑮ IC101 - Pin34	㉒ IC101 - Pin44	㉙ IC103 - Pin2	㊱	㊸ IC501 - Pin12
2Vp-p, 0V	500mVp-p, -1.5V	2Vp-p	2Vp-p, 70mS	1Vp-p, 300mV, 0V		2Vp-p
② IC101 - Pin10	⑨ IC101 - Pin26	⑯ IC101 - Pin35	㉓ IC101 - Pin46	㉚ IC103 - Pin5	㊲ IC501 - Pin2	㊹ IC501 - Pin13
2Vp-p, 0V	500mVp-p, 300mV	5V, 0V, 16mS	1Vp-p	0V, -2V, 400mVp-p	15μS, 5V	2Vp-p
③ IC101 - Pin15	⑩ IC101 - Pin28	⑰ IC101 - Pin38	㉔ IC101 - Pin47	㉛ IC103 - Pin8	㊳ IC501 - Pin4	㊺ IC501 - Pin22
-2V, 1Vp-p, 70μS	5Vp-p, 70μS	1Vp-p	1Vp-p, 0V	0V, -3.5V, 1Vp-p	0.15μS, 8Vp-p	16μS, 5Vp-p
④ IC101 - Pin18	⑪ IC101 - Pin29	⑱ IC101 - Pin39	㉕ IC101 - Pin51	㉜	㊴ IC501 - Pin5	㊻ IC501 - Pin23
2Vp-p	2Vp-p, 0V, 70μS	4Vp-p, 16mS	1Vp-p, 2V		0.15μS, 4Vp-p	16μS, 5Vp-p
⑤ IC101 - Pin21	⑫ IC101 - Pin30	⑲ IC101 - Pin40	㉖ IC101 - Pin55	㉝	㊵ IC501 - Pin7	㊼ IC501 - Pin27
500mVp-p, -1.5V	2Vp-p, 0V	1Vp-p	0V, -2V, 500mVp-p, 1μS		16μS, 5Vp-p	19μS, 5Vp-p
⑥ IC101 - Pin22	⑬ IC101 - Pin31	⑳ IC101 - Pin41	㉗ IC101 - Pin57	㉞	㊶ IC501 - Pin8	㊽ IC501 - Pin30
500mVp-p, -1.5V	4Vp-p, 70μS	16mS, 2.5Vp-p	0V, -2V, 1μS		5Vp-p, 16μS	35μS, 5Vp-p
⑦ IC101 - Pin24	⑭	㉑ IC101 - Pin42	㉘ IC101 - Pin58	㉟	㊷ IC501 - Pin9	㊾ IC501 - Pin31
500mVp-p, -1.5V		1Vp-p	0V, 1Vp-p, -2V		16μS, 5Vp-p	16μS, 5Vp-p



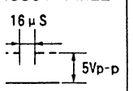
Voltage
0.8
5
0
0
0
*
*
0
0
0
*
2
2
*
*
5

IC501 - Pin12

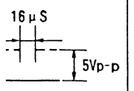
IC501 - Pin13



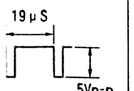
IC501 - Pin22



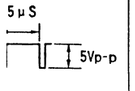
IC501 - Pin23



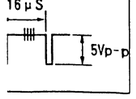
IC501 - Pin27



IC501 - Pin30

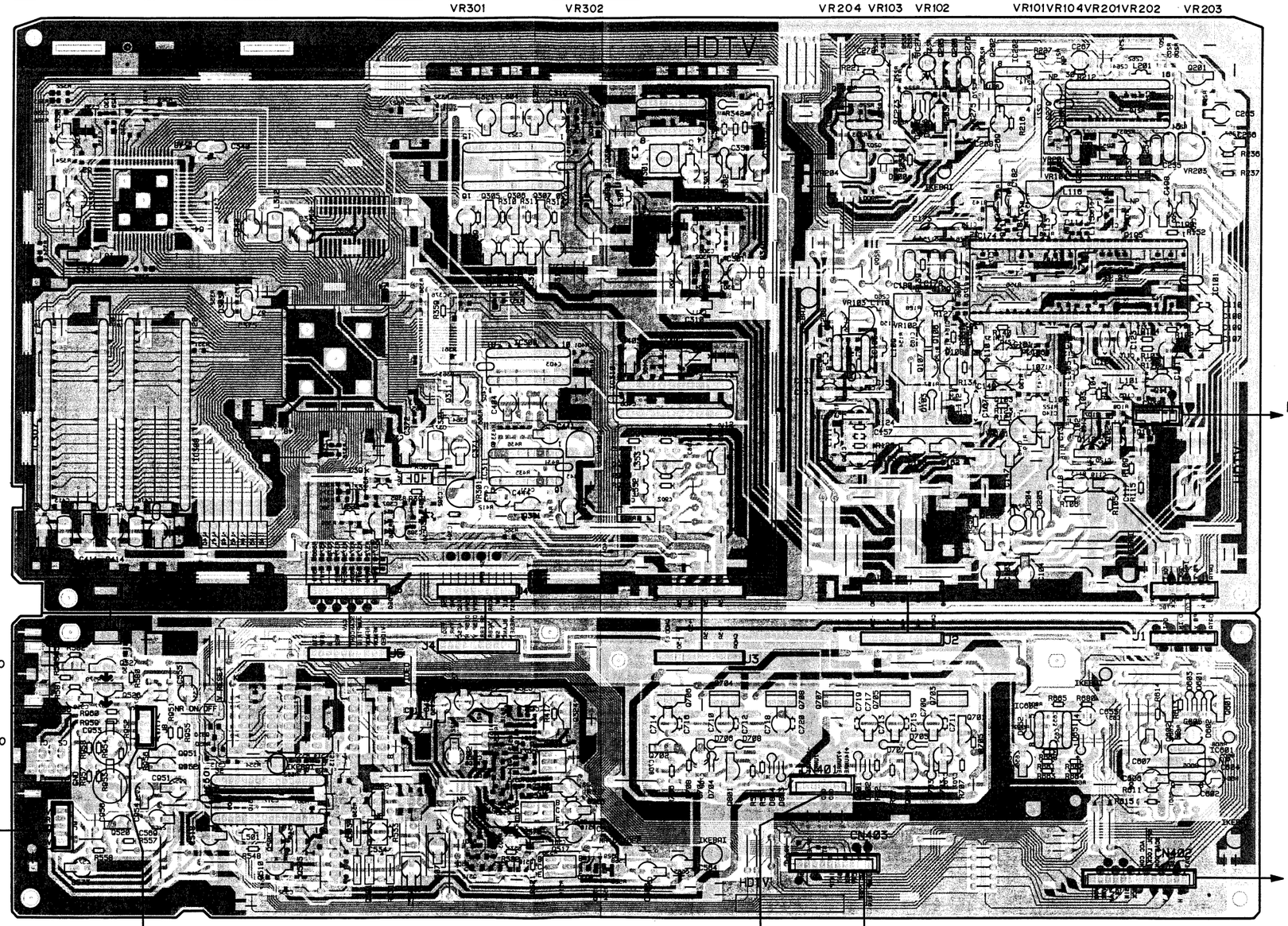


IC501 - Pin31



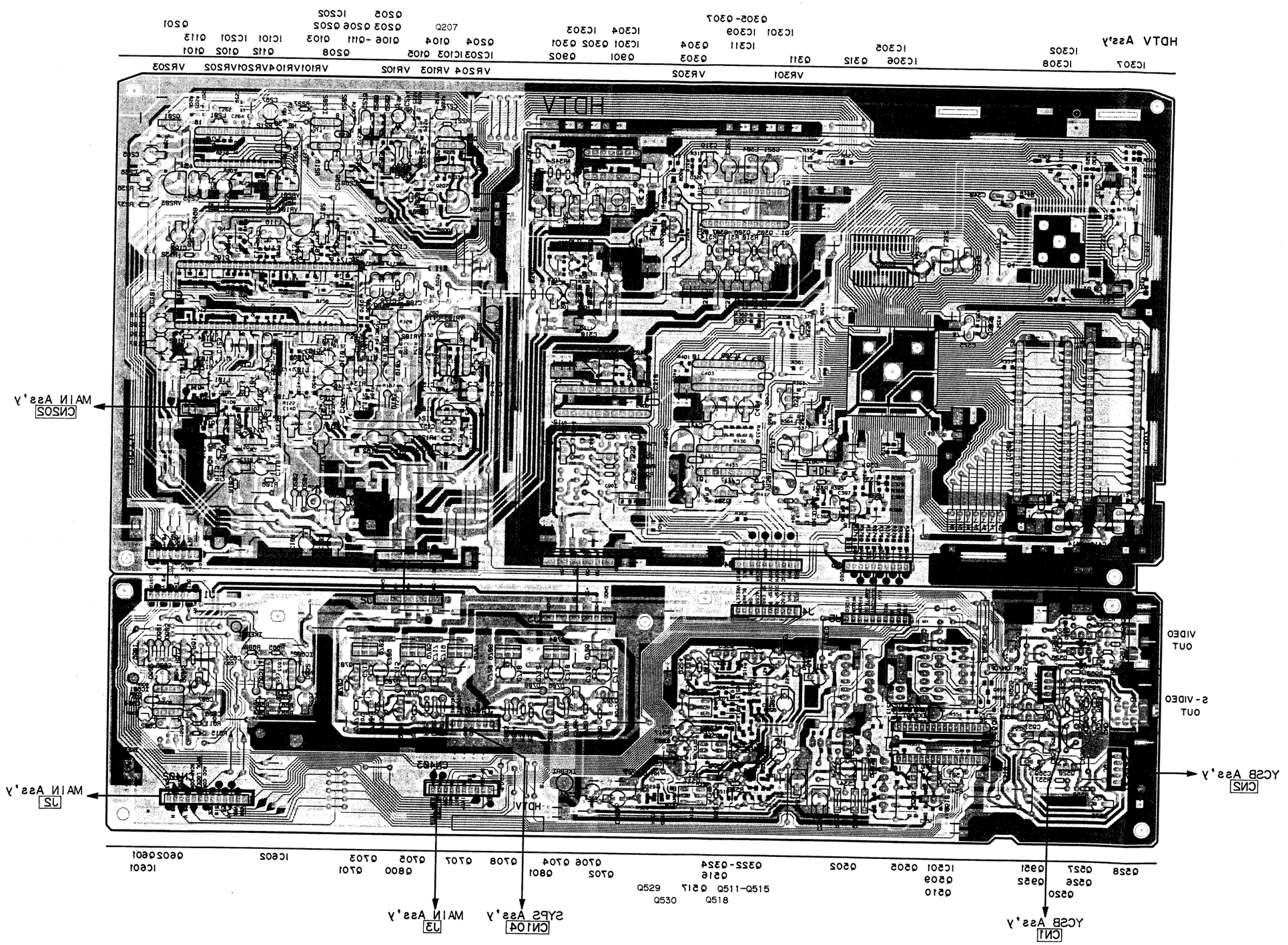
HDTV Ass'y

Q305- Q307 IC301 IC309 IC311 Q304 Q303 IC304 IC303 IC301 Q302 Q301 Q901 Q902 Q205 IC202 Q203 Q206 Q202 Q201 IC307 IC302 IC308 IC305 IC306 Q312 Q311 Q204 Q104 Q106 -Q111 Q103 IC101 IC201 Q113 IC203 IC103 Q105 Q208 Q112 Q102 Q101 VR301 VR302 VR204 VR103 VR102 VR101 VR104 VR201 VR202 VR203



Q528 Q527 Q526 Q520 Q951 Q952 IC501 Q505 Q509 Q510 Q502 Q322-Q324 Q516 Q706 Q704 Q702 Q801 Q708 Q707 Q705 Q703 Q800 Q701 IC602 Q602 Q601 IC601

This P.C.B. connection diagram is viewed from the foil side.

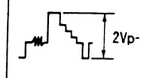


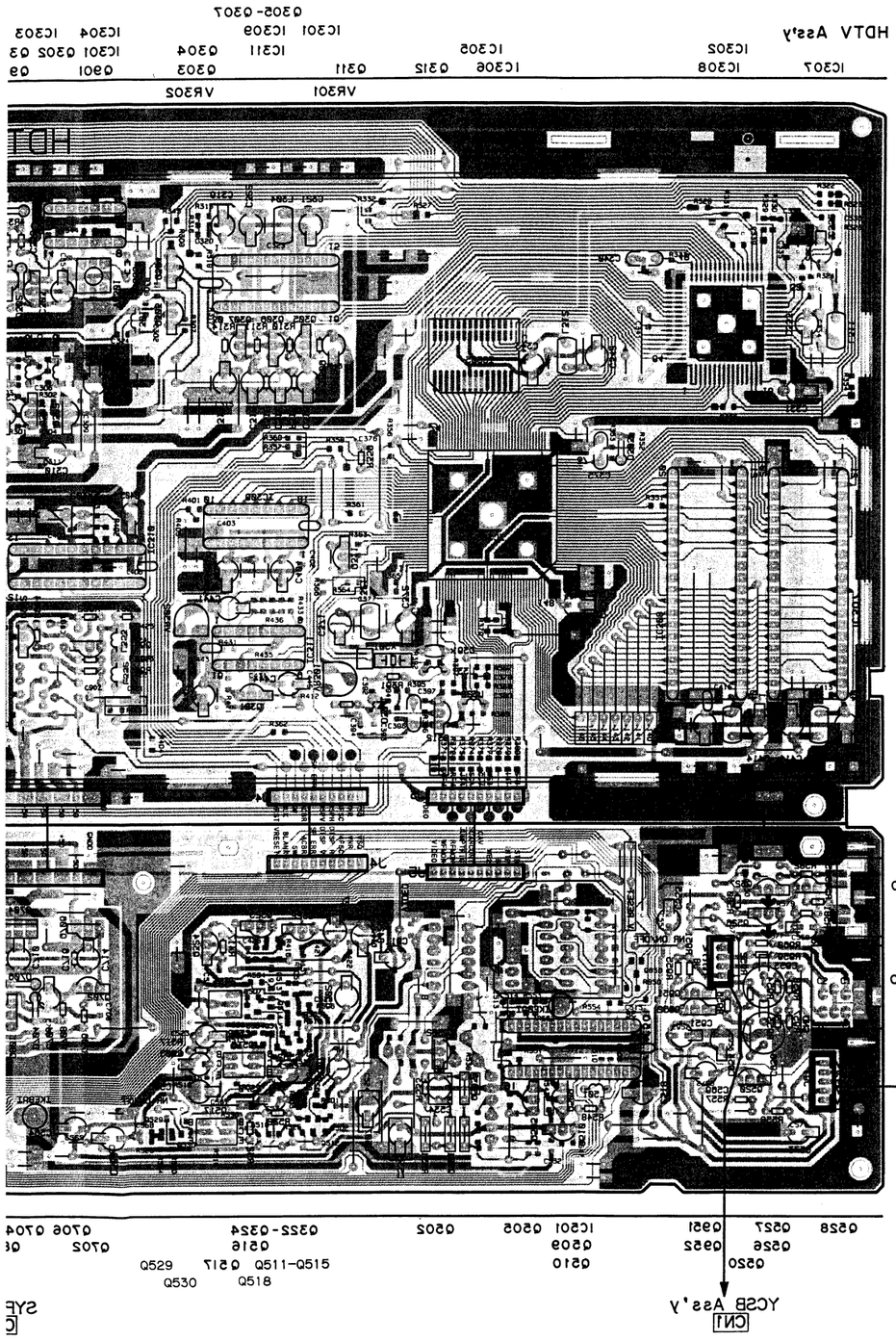
HDTV Ass'y

① Q324 Emitte

② IC309 - Pin4

③ C301 – side

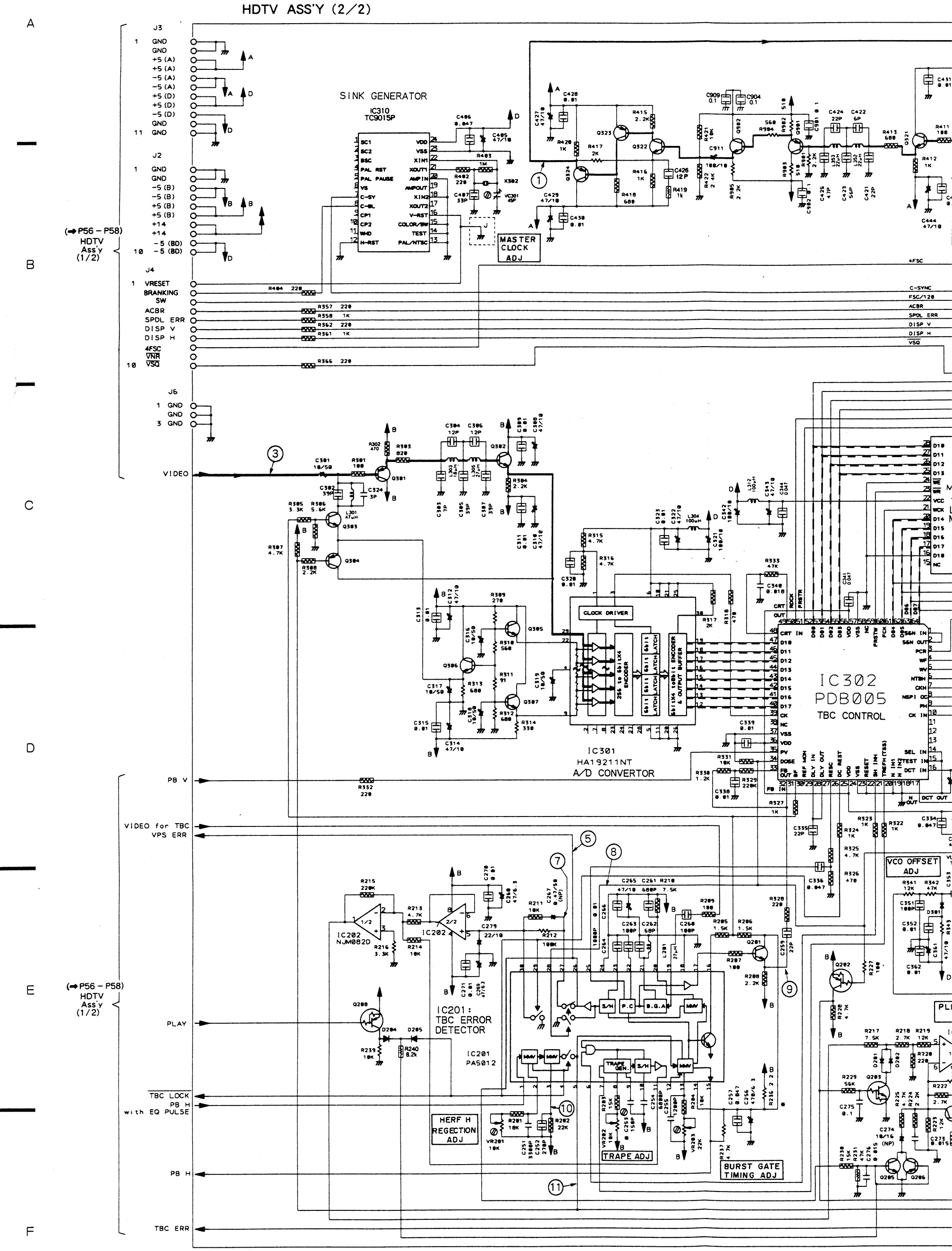




HDTV Ass'y

①Q324 Emitter 0. 75Vp-p	④R209 VIDEO	⑦IC201 - Pin27 2. 2mS	⑩IC201 - Pin3 52 μ S 3. 2Vp-p SPDL LOCK
②IC309 - Pin4 1Vp-p	⑤IC201 - Pin26	⑧IC201 - Pin28 5Vp-p	⑪IC201 - Pin5 5Vp-p 5Vp-p
③C301 — side 2Vp-p	⑥IC202 - Pin1	⑨Q201 Emitter 3. 4 μ S	

5.8 HDTV ASSEMBLY(2/2)



Rev 2007

ASS'Y (2/2)

SINK GENERATOR

IC310
TC9015P

MASTER CLOCK ADJ

IC311
TC74HC4053AP

D/A CONVERTOR
IC309
HA19510

R-2R NETWORK
CURRENT SOURCE
MASTER SLAVE LATCH (8bit)
REF V
CLOCK DRIVER

VIDEO OUT ADJ

4FSC
C-SYNC
FSC/128
ACBR
SPDL ERR
DISP V
DISP H
VSQ

IC305
MN4760S
1H LINE MEMORY

IC302
PDB005
TBC CONTROL

IC301
HA19211NT
A/D CONVERTOR

CLOCK DRIVER
256 to 6bit X4 ENCODER
6bit X4 10bit ENCODER & OUTPUT BUFFER

IC307
MN4700
1M Bit FIELD MEMORY

IC303
NJM78L05A

IC304
TC74HCU04AP

VCO OFFSET ADJ

PLL GAIN ADJ

IC202
NJM082D

IC201:
TBC ERROR DETECTOR

IC201
PA5012

IC203
NJM4558D

HERF H REGECTION ADJ

TRAPE ADJ

BURST GATE TIMING ADJ

5 6 7 8 9

—————: ANALOG VIDEO Signal Line
— — — —: DIGITAL VIDEO Signal Line

IC311
TC74HC4053AP

D/A CONVERTOR
IC309
HA19510

R-2R NETWORK
CURRENT SOURCE
MASTER SLAVE LATCH (8bit)
REF V
CLOCK DRIVER

VIDEO OUT ADJ

140ns ADJ

IC305
MN4760S
1H LINE MEMORY

IC306
PDB006
MEMORY CONTROL

IC307 MN4700
1M Bit FIELD MEMORY

IC308 MN4700
1M Bit FIELD MEMORY

IC303
NJM78L05A

IC304
TC74HCU04AP

IC203
NJM4558D

LL GAIN ADJ

J5

VIDEO 1 (➡P56 – P58)
WFMON
RFMON
JUMP TRIG
SCAN CONT
CAV/CLV
WRE2
B
INTP
STB 10
FSC

HDTV Ass'y (1/2)

FSC
CAV/CLV

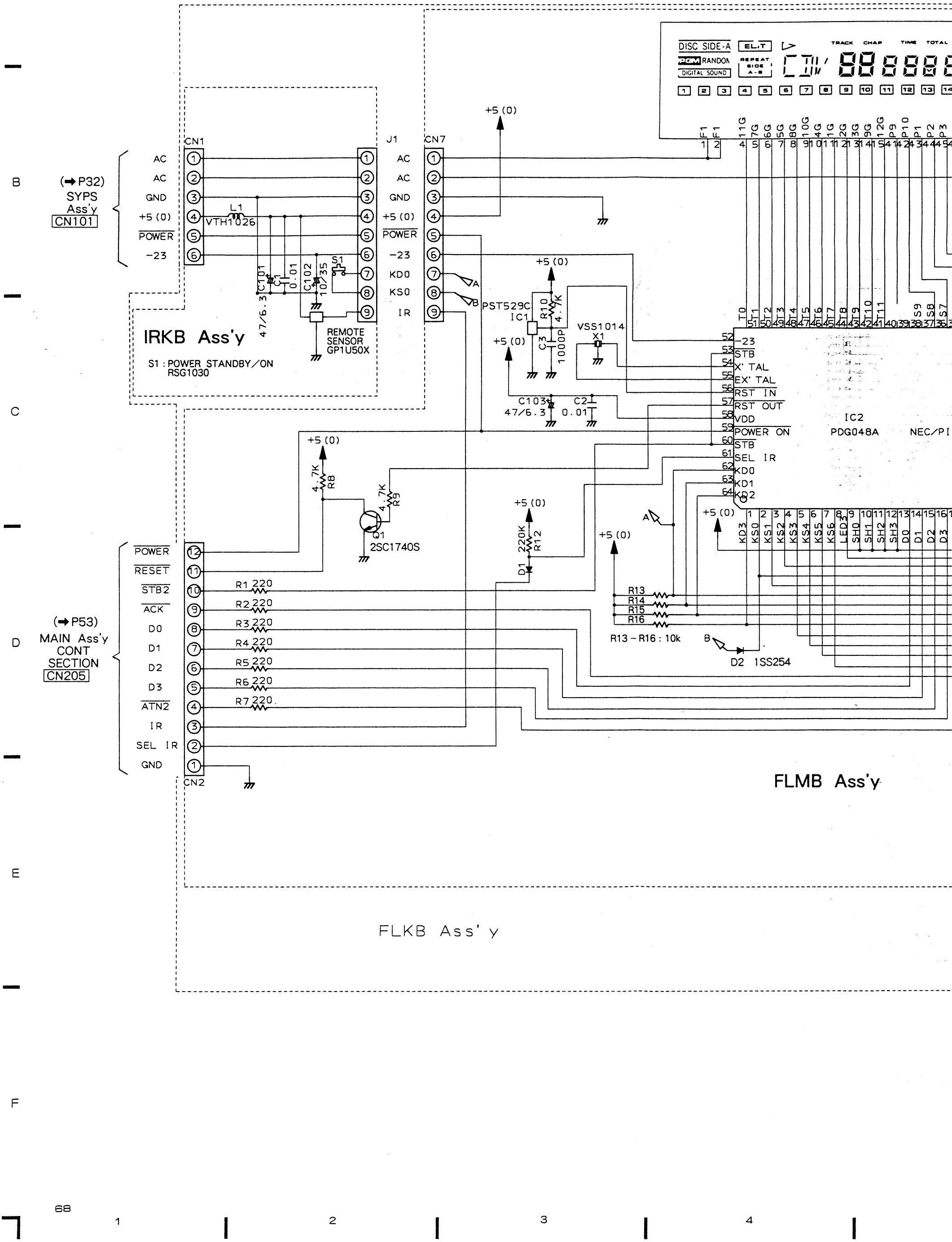
Q201.205.302.303. 2SC1740S
Q305 – 307.312.
Q321.322.902

Q202.208.311 RN2203
Q203 RN1203
Q204.206.301.304. 2SA933S
Q323.324.901

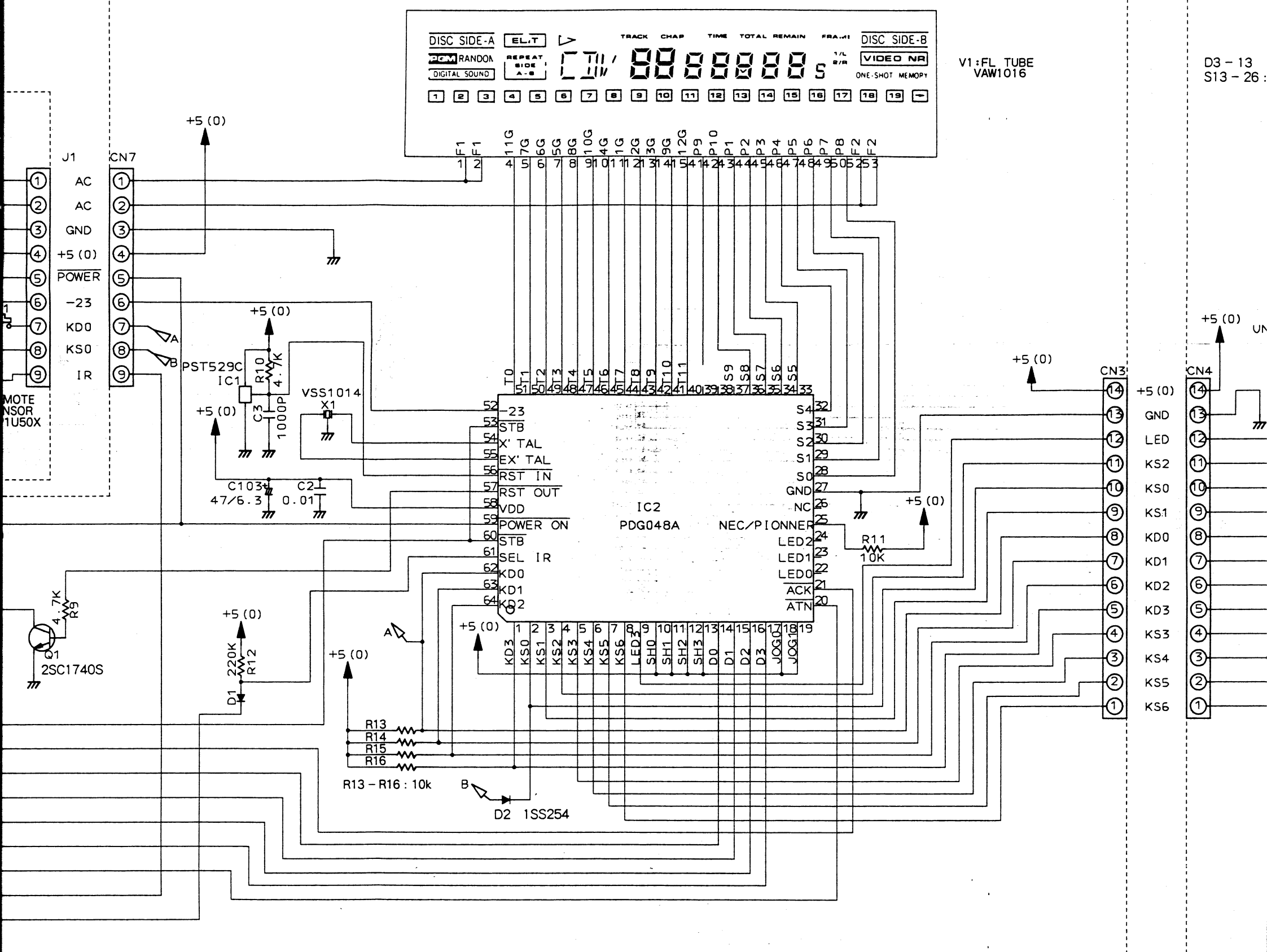
Q207 2SC2412K
D201.202.204.205. 1SS254
D302.303
D301 1SV68
D304 SVC321SP

VC301 : VCM1002
VL301 : VTL1012
X301 : VSS1021
X302 : VSS1005
C253 : VCE1022
R236 : VCN1022
VR201.202.204 : VRTB6VS103
VR203 : VRTB6VS223
VR301 : VRTB6VS102
VR302 : VRTB6VS472
L201.305 : LAU270J
L301 : LAU470J
L303 : LAU180J
L304.311.312. : VTL1006
L321.341.342
L322 : LAU120J
L331 : LAU3R9J
L352.353 : LAU220J

5.9 FIKB ASSEMBLY (IRKB, FIMB, OPEB, KEYB ASSEMBLY)

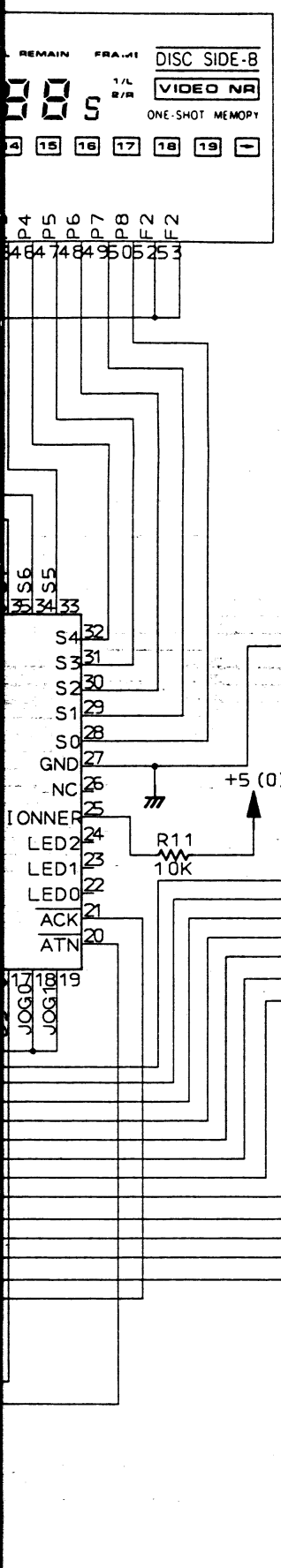


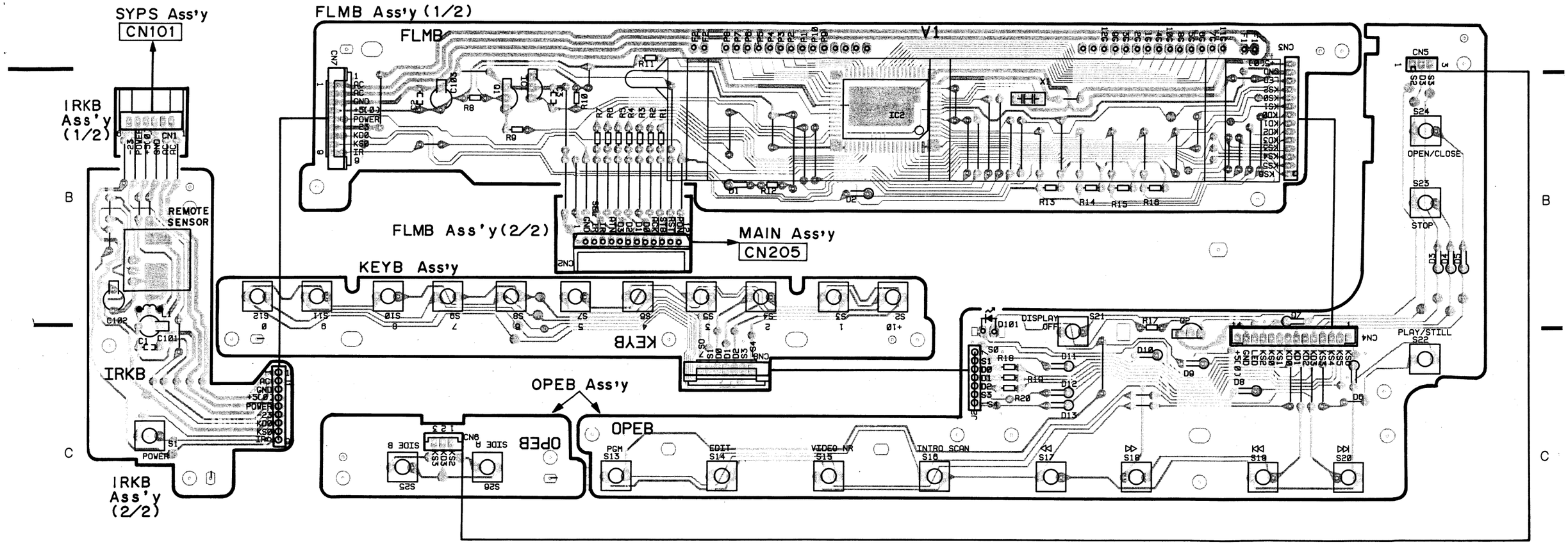
ASSEMBLY)

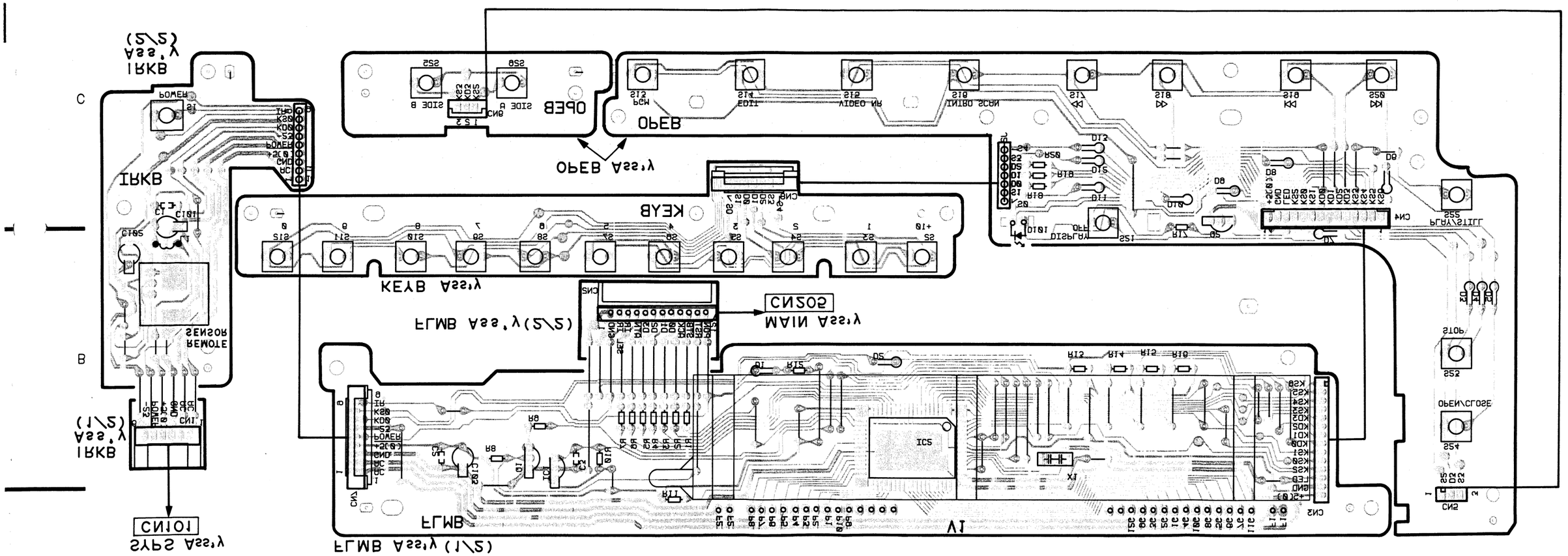


FLMB Ass'y

FLKB Ass' y


REMAIN
FRAME
DISC SIDE-B
VIDEO NR
ONE-SHOT MEMORY
V1:FL TUBE
VAW1016
P4 P5 P6 P7 P8 F2 F2
S6 S5
S4
S3
S2
S1
S0
GND
NC
INNER
LED2
LED1
LED0
ACK
ATN
JOG0
JOG1
+5 (0)
R11
10K
CN3
CN4
+5 (0)
GND
LED
KS2
KS0
KS1
KD0
KD1
KD2
KD3
KS3
KS4
KS5
KS6
UN4212
Q2
R17 300
D101
SLH-56YC3H
D3 – 13 1SS254
S13 – 26 : RSG1030
CN5
CN6
S26 S25
D7
D3
S2
D3
S3
OPEB Ass'y
S13: PGM
S14: AUTO PGM EDIT
S15: VIDEO NR
S16: RANDOM PLAY
S17:
S18:]SCAN
S19:
S20:]SKIP
S21: DISPLAY OFF
S22: PLAY/STILL ▶/▶▮
S23: STOP (■)
S24: OPEN/CLOSE (⏏)
S25: B
S26: A]DISC SIDE
S15 S21 S13
D9
S23
D4
S16 S18 S14 S24
D8
D5
S17 S19 S20 S22
D6
J2 CN8
D10
D11
R18 220
R19 220
R20 220
D12
D13
S0
S1
D0
D1
D2
S3
S4
S7 S6
S8 S9 S5
S10 S11 S12
S4 S3 S2
KEYB Ass'y
S2 : + 10
S3 : 1
S4 : 2
S5 : 3
S6 : 4
S7 : 5
S8 : 6
S9 : 7
S10: 8
S11: 9
S12: 0
DIRECT SEARCH
S2 – 12 : RSG1030


SYPS Ass'y
CN101
IRKB Ass'y (1/2)
REMOTE SENSOR
IRKB
IRKB Ass'y (2/2)
FLMB Ass'y (1/2)
FLMB
V1
FLMB Ass'y(2/2)
MAIN Ass'y
CN205
KEYB Ass'y
KEYB
OPEB Ass'y
OPEB
CN5
OPEN/CLOSE
STOP
PLAY/STILL
DISPLAY OFF

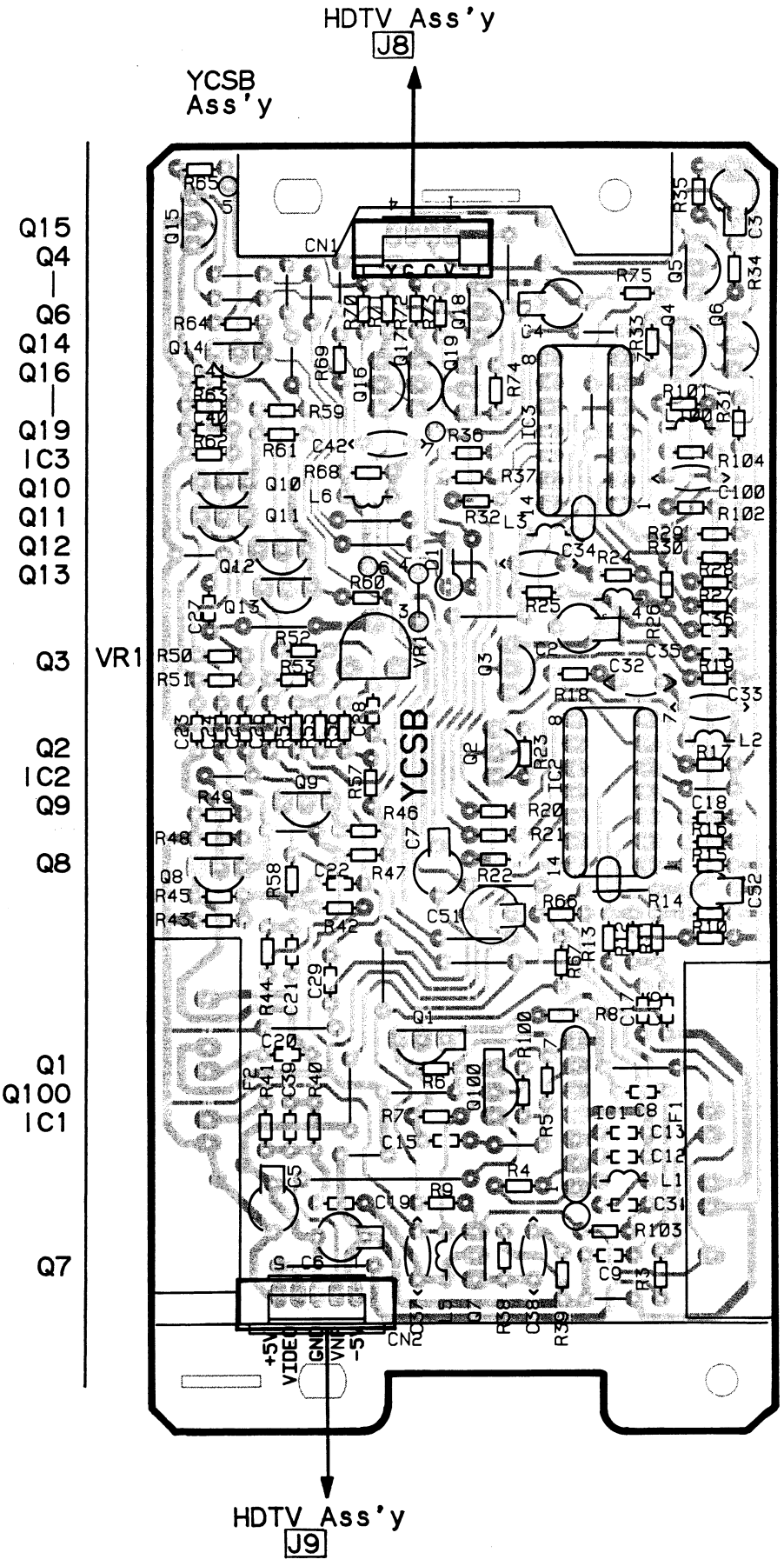


This P.C.B. connection diagram is viewed from the foil side.

5.10 YCSB ASSEMBLY

This P.C.B. connection diagram is viewed from the foil side.

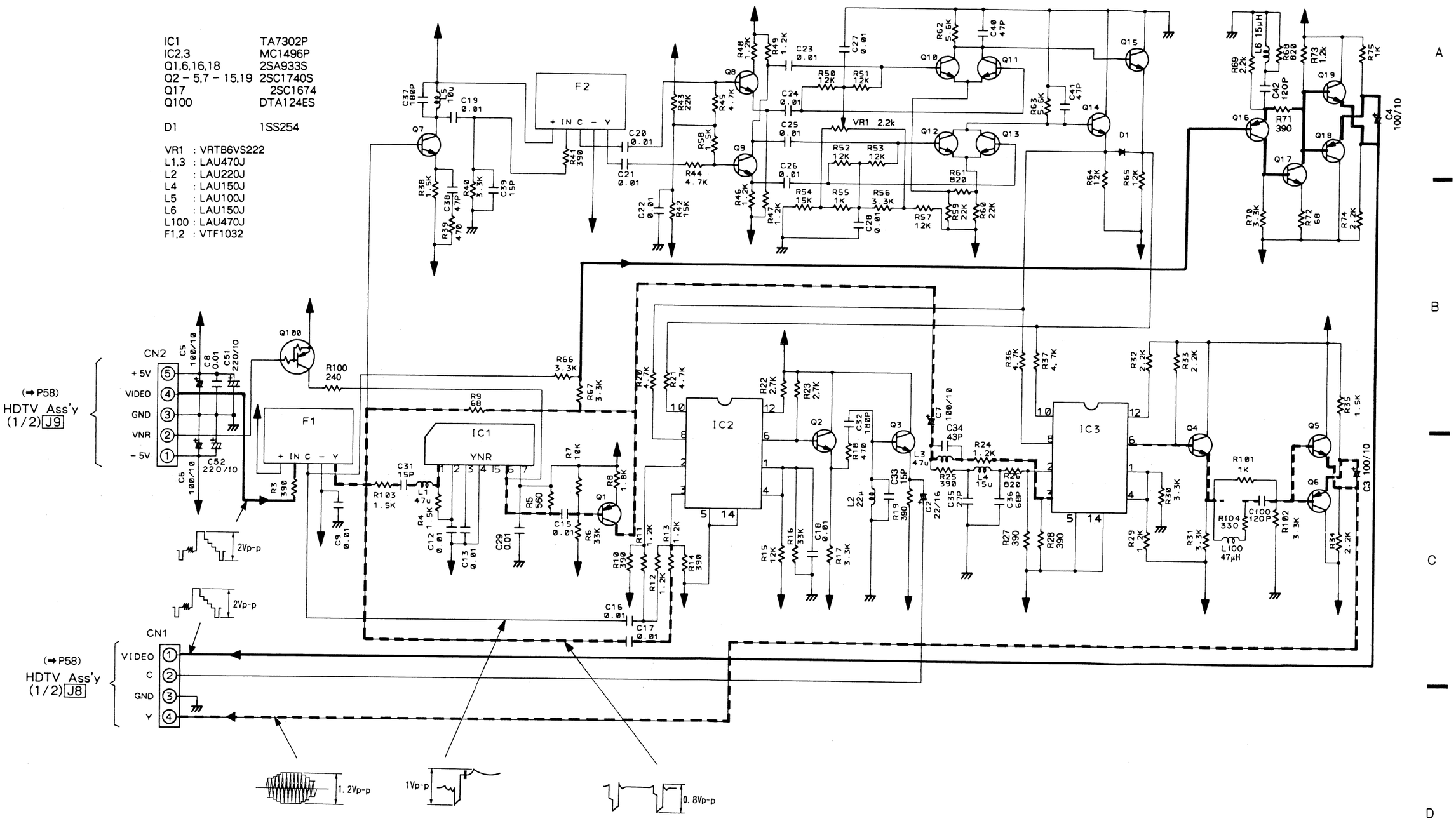
5.10 YCSB ASSEMBLY



YCSB Ass'y

IC1	TA7302P
IC2,3	MC1496P
Q1,6,16,18	2SA933S
Q2 – 5,7 – 15,19	2SC1740S
Q17	2SC1674
Q100	DTA124ES
D1	1SS254

VR1 : VRTB6VS222
L1,3 : LAU470J
L2 : LAU220J
L4 : LAU150J
L5 : LAU100J
L6 : LAU150J
L100 : LAU470J
F1,2 : VTF1032



6. P.C.B's PARTS LIST

NOTES :

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 × 10¹ 561 ..... RD1/4PS 5 6 1 J
47kΩ 47 × 10³ 473 ..... RD1/4PS 4 7 3 J
0.5Ω 0R5 ..... RD2H 0 R 5 K
1Ω 010 ..... RD1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621 ..... RD1/4SR 5 6 2 1 F

Miscellaneous Parts

Mark	No.	Description	Parts No.
		JCER assembly	
		JCCB assembly	
		ERRM assembly	
◉		MAIN assembly	VWS1099
		CNNB assembly	
		FGSB assembly	
		PRET assembly	
		PREB assembly	
		HDTV assembly	
		DFDA assembly	
		DFDB assembly	
		RDAB assembly	
		LDAB assembly	
		PLFB assembly	VWR1097
◉		SYLF assembly	VWM1170
		SYPS assembly	
		SPRT assembly	
		TRSB assembly	
		FLKB assembly	
		FLMB assembly	
		IRKB assembly	
		KEYB assembly	
		OPEB assembly	
		YCSB assembly	
◉		AUDB assembly	VWV1201
		LHSB assembly	
		LVSB assembly	
◉		Carriage assembly	VWT1054
		Pickup assembly	VWY1019
⚠		Power cord	VDG1046
⚠		FU1,FU2,FU5 Fuse(3A)	VEK-018
⚠		FU3, FU4 Fuse(2A)	VEK-022
		S1 Door Switch	VSK1014
⚠		Power transformer	VTT1093
		Loading motor V assembly-S	VXX1324
		Loading motor H assembly-S	VXX1328
		S3,S4 Slide switch (CDV/LD A INSIDE, LD B INSIDE)	VSK1003

Mark	No.	Description	Parts No.
		S5 Slide Switch (CD INSIDE, HEIGHT UP,DOWN)	VSK1009
		Spindle motor	VXM1044
		Tilt (Height) Motor assembly-S	VXX1227
		Slider motor assembly-S	VXX1329
		IC205 Program PROM-S (Mounted on MAIN assembly)	PDK012A

JCER Assembly

JCER assembly is composed of JCCB and ERRM assemblies.

JCCB Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
		IC1,IC2	NJM4558D
		Q1,Q4	2SA933S
		Q2,Q3	2SC1740
		Q5	DTC124ES

CAPACITORS

Mark	No.	Description	Parts No.
		C5,C12	CEANP101M6R3
		C1	CEANP330M10
		C2	CEANP4R7M16
		C3,C4,C6,C7	CEAS101M16
		C8	CFTXA474J50
		C9	CFTXA224J50
		C10	CFTXA564J50
		C11	CEAS470M16

RESISTORS

Mark	No.	Description	Parts No.
		VR1 Semi-fixed(22kΩ)	VRTB6VS223
		Other Resistors	RD1/6PM□□□J

ERRM Assembly

There is not supply parts in this assembly

◉MAIN Assembly (VWS1099)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
		IC201,IC307,IC402	BA15218
		IC101,IC105,IC301,IC304	BA15218N
		IC302	BU4053B
		IC109,IC202	BU74HC00
		IC208	BU74HC02
		IC207	CXD1095Q
		IC204	HD63B03YP
		IC309	IR2339
		IC308	LA6500
		IC303,IC306	LA6510
		IC104,IC206	LC3517BL-15
		IC103	LC7863K
		IC401	NJM4558S
		IC102,IC305	NJU4053BD
		IC203	PD0011A
		IC210,IC211	TA7291P
		IC209	TC74HC30AP
		IC108,IC110	TC74HC74AP
		IC106	YM3613B
		Q205,Q320,Q403,Q406,Q409,Q410	DTA124EK
		Q201,Q319,Q322,Q323,Q401,Q407	DTC124EK
		Q408	RPT-34PB3F
		Q301,Q303,Q305,Q312,Q314	UN4112
		Q207,Q304,Q307,Q313,Q318, Q321	UN4212
		Q204,Q310,Q311,Q317,Q308	UN4215
		Q405	2SA1037K
		Q102,Q107,Q110,Q306,Q315	2SA933S
		Q101,Q105,Q106,Q109,Q309,Q316	2SC1740S
		Q103,Q202,Q203,Q404	2SC2412K
		Q206	2SC2786
		Q302,Q402	2SK184
		D102	FC54M
		D203	HZS6.2NB2
		D204	HZS8.2NB2
		D101	KV1225YBR
		D205,D206,D301 – D316, D400-D403,D405-D407	1SS254

COILS

Mark	No.	Description	Parts No.
		L101,L103	LAU151K
		L102	LAU181J
		L108,L301,L302	LAU220J
		L201	LAU221J
		L105	LAU5R6J
		L106,L107,L110,L111	LFA220J
		VL101 Variable Coil	VTL-275

CAPACITORS

Mark	No.	Description	Parts No.
		C109,C111,C400	CCSQCH101J50
		C102	CCSQCH121J50
		C152,C153,C207	CCSQCH220J50
		C110	CCSQCH270J50
		C147,C155,C202,C203	CCSQCH330J50
		C333 – C335,C346	CCSQCH470J50
		C105	CCSQCH560J50
		C108,C112	CCSQCH680J50
		C123,C312	CCSQSL331J50
		C145	CCSQSL391J50
		C146	CCSQCH300J50
		C157	CCSQSL471J50
		C103	CCSQSL561J50
		C501	CKSQYB272K50
		C126	CCSQUJ221J50
		C125	CCSQUJ330J50
		C205	CEAL101M6R3
		C308	CEANPR47M50
		C316	CEANP100M16
		C134	CEANP2R2M50
		C201,C337	CEANP220M10
		C104,C115	CEASR47M50
		C120,C314	CEAS010M50
		C121,C122,C131,C132,C135,C136	CEAS100M50
		C143,C158 – C160,C209,C214	CEAS101M10
		C347	CEAS2R2M50
		C401	CEAS220M35
		C144	CEAS220M50
		C107,C113	CEAS4R7M50
		C216,.C310	CEAS470M25
		C215	CEAS471M6R3
		C311,C330,C331,C340,C341	CEHAQ470M25
		C139,C307,C313,C332,C348, C349,C353	CFTXA104J50
		C323	CFTXA124J50
		C321,C324	CFTXA184J50
		C329	CFTXA334J50
		C137,C140	CFTXA471J50
		C305,C336	CFTXA473J50
		C127,C129	CFTXA474J50
		C328	CFTXA683J50
		C141	CFTXA823J50
		C219	CGCYX473M25
		C117	CKCYF103Z50
		C101,C119	CKCYF223Z50
		C210,C213	CKPUYF223Z25
		C360	CKSQYB102K50
		C502	CKSQYB182K50
		C204,C402 – C404	CKSQYF103Z50
		C161 – C163,C165,C167,C168, C206,C208,C211,C212,C217,C218, C301 – C304,C325,C326,C338, C339,C345,C350	CKSQYF104Z25

Mark	No.	Description	Parts No.
	C118		CKSQYF223Z50
	C315		CQMA122J50
	C114,C344		CQMA222J50
	C124,C342		CQMA223J50
	C343		CQMA332J50
	C306		CQMA333J50
	C106		CQMA392J50
	C322,C327,C354		CQMA472J50
	C320,C503		CQMA682J50
	C355		CQMA822J50
	C309	(22μ/10V)	VCH1067
	VC201	Ceramic trimmer(45p)	VCM-003

RESISTORS

Mark	No.	Description	Parts No.
	VR101	Semi-fixed(22kΩ)	VRTB6VS223
	R223	Resistor-array	RA11T103J
	R323,R359		RD1/2PMF□□□J
	R162,R206,R236,R237,R305,R309, R318,R322,R325,R334,R335,R339, R344,R350,R368,R371,R379,R401, R402,R413,R424		RD1/6PM□□□J
	Other Resistors		RS1/10S□□□J

OTHERS

Mark	No.	Description	Parts No.
	CN209	5P connector	VKN1087
	CN213	23P Connector(FFC)	VKN1088
	JA101	Optical output jack	GP1F32T
	X201	Ceramic resonator	KBR-8.0M
	X101	Crystal resonator(16MHz)	VSS1004
		28 Pin IC socket	VKH1001
		2P mini jack	VKN1034

CNNB Assembly

RESISTOR

Mark	No.	Description	Parts No.
	R301		RS1/10S472J

OTHER

Mark	No.	Description	Parts No.
	CN911	5P connector	VKN1086

FGSB Assembly

SEMICONDUCTOR

Mark	No.	Description	Parts No.
	D401		GP1S51

RESISTOR

Mark	No.	Description	Parts No.
	R401		RS1/10S221J

PRET Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC201		BA15218
	Q201,Q202		2SC1740S

CAPACITORS

Mark	No.	Description	Parts No.
	C201		CCSQSL331J50
	C202 – C205		CKSQYF104Z25

RESISTORS

Mark	No.	Description	Parts No.
	VR201	Semi-fixed(1kΩ)	VRTB6VS102
	VR202,VR203	Semi-fixed(4.7kΩ)	VRTB6VS472
	Other resistors		RS1/10S□□□J

OTHERS

Mark	No.	Description	Parts No.
	CN905	6P Connector	VKN1082
	CN906	8P Connector	VKN1083

PREB Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC101		BA15218
	IC102		IR3C02A

CAPACITORS

Mark	No.	Description	Parts No.
	C101,C102		CEJA101M10
	C103		CEJANP010M50
	C104		CEAS101M10
	C105		CEAL220M16
	C106		CCSQCH680J50
	C107 – C110,C112		CKSQYF104Z25
	C111		CKSQYF103Z50

RESISTORS

Mark	No.	Description	Parts No.
	VR101-VR103	Semi-fixed(4.7kΩ)	VRTB6VS472
	VR104	Semi-fixed(100kΩ)	VRTB6VS104
	R119		RD1/4PM100J
	Other resistors		RS1/10S□□□J

OTHERS

Mark	No.	Description	Parts No.
	CN901	23P Connector	VKN1079
	CN902	29P Connector	VKN1025
	CN903	6P Connector	VKN1080
	CN904	8P Connector	VKN1081

HDTV Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC301		HA19211NT
	IC309		HA19510
	IC602		IR9393
	IC307,IC308		MN4700
	IC305		MN4760S
	IC501		M50554-132SP
	IC202		NJM082D
	IC203,IC601		NJM4558D
	IC303		NJM78L05A
	IC101		PA5010
	IC201		PA5012
	IC302		PDB005
	IC306		PDB006
	IC103		PM0001
	IC304		TC74HCU04AP
	IC311		TC74HC4053AP
	IC310		TC9015P
	Q530		DTA124EK
	Q850		DTC124EK
	Q203,Q509		RN1203
	Q202,Q208,Q311,Q601,Q602		RN2203
	Q512		2SA1037K
	Q101,Q102,Q105,Q112,Q204,Q206, Q301,Q304,Q323,Q324,Q505,Q510, Q526,Q702,Q800,Q901		2SA933S
	Q706		2SB1238X
	Q704,Q708		2SB1375
	Q103,Q104,Q106 – Q111,Q113, Q201,Q205,Q302,Q303, Q305 – Q307,Q312,Q321,Q322, Q502,Q520,Q527,Q528,Q701,Q801, Q902,Q951,Q952		2SC1740S
	Q207,Q511,Q513 – Q515,Q518, Q529		2SC2412K
	Q516,Q517		2SC3064
	Q703,Q705,Q707		2SD2012
	D703,D704		HZS5C1
	D304		SVC321SP
	D800		TLN113
	D103,D201,D202,D204,D205,D302, D303,D601 – D603,D651,D652, D705 – D708,D801 – D804		1SS254
	D301		1SV68

COILS AND FILTERS

Mark	No.	Description	Parts No.
	L110		LAU101J
	L103 – L105,L113,L322		LAU120J
	L112		LAU121J
	L114,L303		LAU180J
	L102,L352,L353		LAU220J
	L109,L111		LAU221J
	L201,L305		LAU270J
	L331		LAU3R9J
	L501		LAU390J
	L106,L108,L301		LAU470J
	L101,L115		LAU560J
	L107		LAU620J
	L116		LRA561K
	L304,L311,L312,L321,L341,L342 (100μH)		VTL1006
	VL301 Variable Coil		VTL1012
	F503 TRAP (3.58MHz)		VTF1039

CAPACITORS

Mark	No.	Description	Parts No.
	C123		CCCCH101J50
	C106		CCCCH151J50
	C391		CCCCH360J50
	C167		CCCSL241J50
	C353		CCPUCH200J50
	C355		CCPUUJ220J50
	C324		CCSQCH030C50
	C422		CCSQCH060D50
	C303		CCSQCH070D50
	C142		CCSQCH100D50
	C509,C510		CCSQCH100D50
	C158,C187,C260,C263,C351,C530		CCSQCH101J50
	C186		CCSQCH111J50
	C131,C133,C145,C304,C306,C426		CCSQCH120J50
	C124,C216,C354,C504		CCSQCH150J50
	C114,C115		CCSQCH160J50
	C177,C179,C377,C380		CCSQCH151J50
	C112		CCSQCH180J50
	C165,C392		CCSQCH181J50
	C259,C335,C421,C424		CCSQCH220J50
	C125,C150		CCSQCH221J50
	C130		CCSQCH270J50
	C126,C160,C252,C516		CCSQCH271J50
	C132,C159,C356,C407		CCSQCH330J50
	C141,C143,C302,C305,C307		CCSQCH390J50
	C138,C183		CCSQCH430J50
	C105,C166,C196,C425		CCSQCH470J50
	C188,C423		CCSQCH560J50
	C262,C379		CCSQCH680J50
	C190		CCSQCH910J50
	C503		CCSQSL471J50
	C397		CCSQSL561J50
	C261		CCSQSL681J50
	C149,C161,C181		CEAL100M16
	C371		CEAL101M6R3
	C182		CEAS330M10
	C564,C566,C573,C951,C954		CEAL470M16
	C268,C269		CEAL470M6R3
	C267		CEANPR47M50
	C604		CEANP010M50
	C274,C534		CEANP100M16
	C605		CEANP100M25
	C195,C279		CEANP220M10
	C501		CEANP470M10
	C111		CEASR47M50
	C331,C404		CEAS010M50

Mark	No.	Description	Parts No.
	C301,C316 – C319,C502		CEAS100M50
	C103,C104,C147,C208,C321,C332, C342,C411,C414,C555,C556,C703, C704,C911		CEAS101M10
	C441		CEAS220M25
	C107,C108,C117,C118,C139,C151, C152,C162,C163,C173,C174,C198, C199,C265,C308,C310,C312,C314, C322,C333,C343,C359,C361,C401, C405,C412,C415,C427,C429,C442, C444,C505 – C507,C518,C522, C536,C562,C569,C570,C606,C607, C654,C655,C709,C710,C713,C714, C717,C718		CEAS470M10
	C357		CEAS470M25
	C953,C956		CEAS471M10
	C256,C372,C398		CEAS471M6R3
	C169,C275,C375		CFTXA104J50
	C340		CFTXA183J50
	C602		CFTXA273J50
	C180		CFTXA683J50
	C109,C110,C153,C157,C209,C711, C712,C715,C716,C719,C720		CKPUYY103N16
	C113,C116,C119,C120,C127,C136, C137,C140,C146,C148,C154 – C156, C164,C175,C176,C178,C184,C185, C191 – C193,C197,C200,C201,C212, C266,C270,C271,C277,C278,C309, C311,C313,C315,C320,C323,C338, C339,C352,C362,C393,C402,C403, C428,C430,C431,C443,C445,C513, C514,C517,C519,C523,C537,C557, C558,C563,C571,C608,C609,C652, C653,C656,C657,C705,C706		CKSQYF103Z50
	C264		CKSQYB102K50
	C376		CKSQYB472K50
	C901,C902,C904,C909,C952,C955		CKSQYF104Z25
	C170,C189,C210,C211,C257,C334, C336,C341,C344,C358,C360,C373, C374,C381,C394,C396,C406,C413, C416,C508,C515,C520,C521,C524, C525,C532,C561,C565,C567,C568, C572,C574,C707,C708		CKSQYF473Z25
	C172,C395		CQMA103J50
	C255		CQMA122J50
	C273,C276		CQMA153J50
	C171		CQMA272J50
	C251		CQMA332J50
	C272		CQMA273J50
	C134		CQMA473J50
	C254		CQMA682J50
	C253	(150p)	VCE1022
	VC301	Ceramic trimmer(45P)	VCM1002

RESISTORS

Mark	No.	Description	Parts No.
	VR103,VR301	Semi-fixed(1kΩ)	VRTB6VS102
	VR201,VR202,VR204	Semi-fixed(10kΩ)	VRTB6VS103
	VR101	Semi-fixed(220Ω)	VRTB6VS221
	VR102	Semi-fixed(2.2kΩ)	VRTB6VS222
	VR203	Semi-fixed(22kΩ)	VRTB6VS223
	VR104	Semi-fixed(4.7kΩ)	VRTG6VS472
	VR302	Semi-fixed(4.7kΩ)	VRTB6VS472
	R236	(2.2)	VCN1022
	R102 – R104,R139,R140,R152, R611,R615,R661 – R664		RN1/6PQ□□□□F
	R51 – R54,R105,R106,R109,R114, R115,R121,R123,R124,R126,R127, R131,R134,R170,R212,R216,R221, R227,R235,R237,R239,R309 – R314, R341 – R343,R346,R359,R391,R393, R417,R517,R521,R522,R548,R557, R558,R580 – R583,R613,R614,R665, R668,R680,R705 – R708, R901 – R905,R951 – R960		RD1/6PM□□□J
	Other resistors		RS1/10S□□□J

OTHERS

Mark	No.	Description	Parts No.
	X301	Crystal resonator	VSS1021
	X302	Crystal resonator	VSS1005
	2P	Pin jack	VKB1041
	S	connector(8P)	VKN1134

DFDA Assembly

DFDA assembly is composed of DFDB, LDAB and RDAB assemblies.

DFDB Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC702		HD74HC153P
	IC701		SM5813AP

CAPACITORS

Mark	No.	Description	Parts No.
	C701		CKPUYF103Z25
	C702		CGCYX473M25
	C703		CEAL470M6R3
	C704		CEAS101M10

OTHERS

Mark	No.	Description	Parts No.
		PC support	VEC1428
		Cushion	VEC1429
		Cushion	VEC1432

RDAB Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC601		AD1862N-P

CAPACITORS

Mark	No.	Description	Parts No.
	C601,C602	(47μ/63V)	VCH1072
	C603		CFTXA105J50
	C604		CEYA100M50

RESISTORS

Mark	No.	Description	Parts No.
	VR601	Semi-fixed(100kΩ)	VRTB6HS104
	R601,R602		RD1/6PM474J

LDAB Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC501		AD1862N

CAPACITORS

Mark	No.	Description	Parts No.
	C501,C502	(47μ/63V)	VCH1072
	C503		CFTXA105J50
	C504		CEYA100M50

RESISTORS

Mark	No.	Description	Parts No.
	VR501	Semi-fixed(100kΩ)	VRTB6HS104
	R501,R502		RD1/6PM474J

◉SYLF Assembly (VWM1170)

SYLF assembly is composed of SPRT, SYPS, PLFB and TRSB assemblies.

SYPS Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC1		NJM4558S
	IC2		TA8413P
	IC3		ICP-N20
	Q302		STA302A
	Q303		STA303A
	Q20,Q26		UN4112
	Q5,Q6,Q9,Q21,Q22		UN4212
	Q23 – Q25		2SA817
	Q1,Q10,Q14		2SA933S
	Q18		2SB1185
	Q16		2SB1185-F8
	Q15		2SB1375
	Q2,Q7,Q11,Q13		2SC1740S
	Q8		2SC1847
	Q3		2SC1627
	Q4		2SD1267
	Q17,Q19		2SD1762
	Q12		2SD2012
	D19		D3SBA20
	D13		HZS5.1NB1
	D7		HZS5.1NB2
	D23		HZS5.6NB2
	D16		MTZJ20A
	D17		MTZJ27C
	D18		RBA-406B
	D1		S2K20
	D25 – D27		S3V10-4002P7.5
	D2,D8,D14,D15,D20,D21,D24		1SR139-100
	D3 – D6,D9 – D12,D22		1SS254

COIL

Mark	No.	Description	Parts No.
	L1		VTT1016

CAPACITORS

Mark	No.	Description	Parts No.
	C7,C13,C14,C32		CEAS100M50
	C18,C19		CEAS101M50
	C27,C28		CEAS222M25
	C29		CEAS102M16
	C6		CEAS3R3M50
	C38		CEAS4R7M50
	C11,C12,C15,C16,C31		CEAS470M16
	C17,C20,C34		CEAS470M25
	C5		CEAS470M50
	C10,C30,C33		CEAS471M25
	C26		CEAS472M16
	C4		CKPUYB471K50
	C3		CKPUYB681K50
	C21 – C24,C39		CKPUYF103Z25
	C2		CQMA183J50
	C9		CQMA472J50
	C1		CQMA332J50
	C43 – C45		CQMA333J50
	C25	ELECTR.(10000μ/16V)	VCH1055
	C35-C37,C40-C42	ELECTR. (22μ/50V)	VCH1091

RESISTORS

Mark	No.	Description	Parts No.
	R46 – R51		RD1/2PM471J
	R14 – R17		RN1/6PQ□□□□F
	R12,R13,R22,R38		RS1LMF□□□J
	Other resistors		RD1/6PM□□□J

PLFB Assembly (VWR1097)

COIL

Mark	No.	Description	Parts No.
⚠	L101		VTL-157

CAPACITORS

Mark	No.	Description	Parts No.
⚠	C101,C102	(0.01μ)	RCG-009

SPRT Assembly

There is not supply parts in this assembly

TRSB Assembly

There is not supply parts in this assembly

FLKB Assembly

FLKB assembly is composed of FLMB, OPEB, IRKB and KEYB assemblies.

FLMB Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC1		PST529C
	IC2		PDG048A
	Q1		2SC1740S
	D1,D2		1SS254

CAPACITORS

Mark	No.	Description	Parts No.
	C2		CKPUYY103N16
	C3		CKPUYB102K50
	C103		CEJA470M6R3

RESISTORS

Mark	No.	Description	Parts No.
	All resistors		RD1/6PM□□□J

OTHERS

Mark	No.	Description	Parts No.
	V1	Fluorescent indicator tube	VAW1016
	X1	Ceramic resonator	VSS1014

IRKB Assembly

SWITCH

Mark	No.	Description	Parts No.
	S1	Tact switch (POWER STANDBY/ON)	RSG1030

COIL

Mark	No.	Description	Parts No.
	L1		VTH1026

CAPACITORS

Mark	No.	Description	Parts No.
	C1		CKPUYY103N16
	C101		CEJA470M6R3
	C102		CEJA100M35

OTHERS

Mark	No.	Description	Parts No.
		IR sensor unit	GP1U50X

KEYB Assembly

SWITCHES

Mark	No.	Description	Parts No.
	S2-S12	Tact switch (+10, 1 – 10)	RSG1030

OPEB Assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	Q2		UN4212
	D3 – D13		1SS254
	D101		SLH-56YC3H

SWITCHES

Mark	No.	Description	Parts No.
	S13-S26	Tact switch (PGM, AUTO PGM EDIT, VIDEO NR, RANDOM PLAY, SCAN (◀◀, ▶▶), SKIP (⏮, ⏭), DISPLAY OFF, PLAY/STILL (▶/⏯), STOP (■), OPEN, CLOSE (▲), B, A DISC SIDE)	RSG1030

RESISTORS

Mark	No.	Description	Parts No.
	All resistors		RD1/6PM□□□J

YCSB Assembly

COILS AND FILTERS

Mark	No.	Description	Parts No.
	IC2,IC3		MC1496P
	IC1		TA7302P
	Q100		DTA124ES
	Q17		2SC1674
	Q1,Q6,Q16,Q18		2SA933S
	Q2 – Q5,Q7 – Q15,Q19		2SC1740S
	D1		1SS254

CAPACITORS

Mark	No.	Description	Parts No.
	L1,L3		LAU470J
	L2		LAU220J
	L4		LAU150J
	L5		LAU100J
	L6		LAU150J
	L100		LAU470J
	F1,F2		VTF1032

CAPACITORS

Mark	No.	Description	Parts No.
	C42		CCCCH121J50
	C34		CCCCH430J50
	C33		CCCCH150J50
	C37		CCCSL181J50
	C100		CCDCH121J50
	C32		CCDSL181J50
	C31,C39		CCPUCH150J50
	C35		CCPUSL270J50
	C38,C40,C41		CCPUSL470J50
	C36		CCPUSL680J50
	C3 – C7		CEAS101M10
	C51,C52		CEAS221M10
	C2		CEAS220M16
	C8,C9,C12,C13,C15-C29		CKPUYY103N16

RESISTORS

Mark	No.	Description	Parts No.
	VR1	Semi-fixed(2.2kΩ)	VRTB6VS222
	R10,R14,R22,R23,R32,R33,R27, R28,R71		RN1/6PQ□□□□F
	Other resistors		RD1/6PM□□□J

◉AUDB Assembly (VWV1201)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC3,IC4		BU4053B
	IC12		M5F7806L
	IC10		M5F7812L
	IC13		M5F7906L
	IC11		M5F7912L
	IC5,IC6		NJM5532SD
	IC9		PA0034A
	Q1		UN4112
	Q2		2SA933S
	Q3 – Q6		2SD2144S
	Q7		2SC2786
	Q8		2SC1740S
	D3 – D6		31DF2-FE

COILS AND FILTERS

Mark	No.	Description	Parts No.
	L2		LAU270J
	L1,L3		LAU560J
	F1	BPF (2.30, 2.81MHz)	RTF1084

CAPACITORS

Mark	No.	Description	Parts No.
	C41,C59		CCCCH560J50
	C29,C31		CCCCH910J50
	C30		CCCSL221J50
	C57		CCCSL271J50
	C39		CCCSL301J50
	C45,C63		CEANP220M10
	C47		CEANP330M16
	C66		CEASR47M50
	C32,C50		CEAS100M50
	C38,C56		CEAS101M10
	C42,C51,C60,C67		CEAS220M50
	C34,C37,C48,C52,C55		CEAS221M6R3
	C80 – C83		CENA470M50
	C65		CEAS4R7M50
	C12,C26		CEYANP220M25
	C49		CFTXA104J50
	C79		CFTXA123J50
	C33		CKCYF103Z50
	C68,C69		CKPUYF103Z25
	C35,C36,C53,C54		CKCYF223Z50
	C46,C64		CQMA393J50
	C43,C44,C61,C62		CQMA472J50
	C40,C58		CQMA682J50
	C3,C17	(220p)	VCE1014
	C8,C22	(470p)	VCE1017
	C6,C20	(22000p)	VCE1018
	C7,C21	(1000p)	VCE1019
	C72-C75	ELECT.(330μ/25V)	VCH1056
	C11,C25	ELECT.(22μ/100V)	VCH1057
	C4,C5,C18,C19	ELECT(100μ/25V)	VCH1058
	C70,C71	ELECT.(2200μ/25V)	VCH1066
	C1,C2,C15,C16	ELECT.(47μ/100V)	VCH1085

RESISTORS

Mark	No.	Description	Parts No.
	R11,R27	Audio resistor(330/5W)	VCN1006
	R15,R31,R77,R78		RDR1/2PM□□□J
	R3 – R7,R9,R10,R13,R16, R19 – R23,R25,R26,R29,R32		RDR1/4PM□□□J
	Other resistors		RD1/6PM□□□J

OTHER

Mark	No.	Description	Parts No.
	JA1	4P pin jack	VKB1015

LHSB Assembly

SWITCH

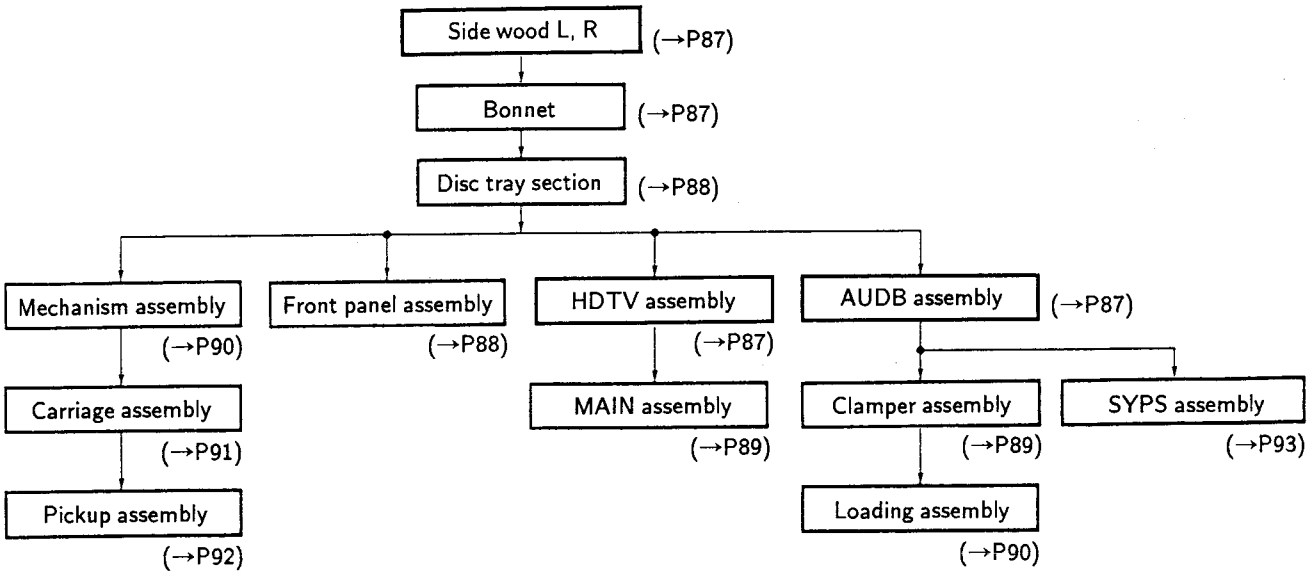
Mark	No.	Description	Parts No.
		Leaf switch (Position detect switch of H. direction)	VSK1011

LVSB Assembly

SWITCH

Mark	No.	Description	Parts No.
		Push switch (Position detect switch of V. direction)	DSG1015

7. DISASSEMBLY

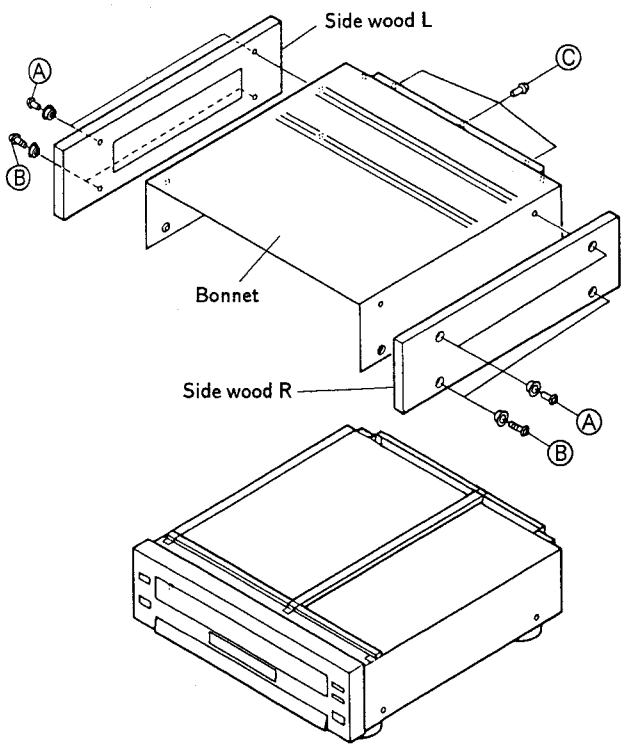


1. Bonnet and Side wood L, R

① Remove two set screws Ⓐ Ⓑ from both the left and right side wood panels.

② Remove the three set screws Ⓒ at the rear of the player.

Note : There are two types of side wood panel set screws.

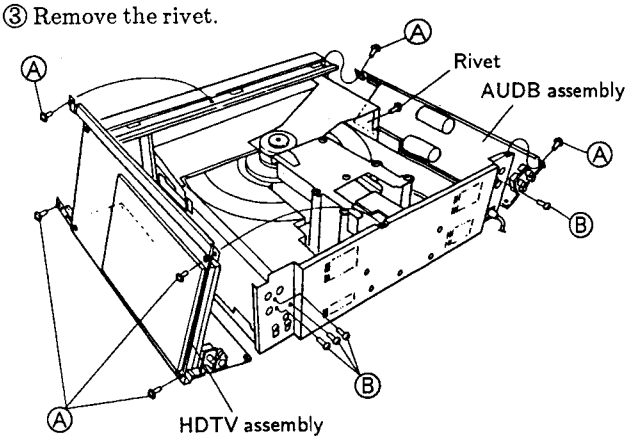


2. HDTV and AUDB assemblies

① Remove the six set screws Ⓐ from the reinforcement bridge.

② From the rear of the player, remove the audio output terminal's four set screws Ⓑ .

③ Remove the rivet.



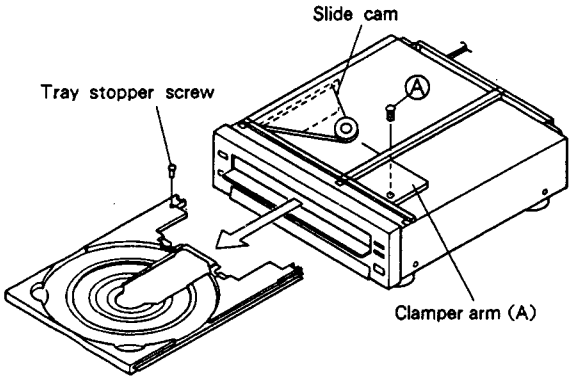
3. Disc tray

Note : The bonnet should be removed first.

① Push the slide cam with your hand toward the front until it stops. (Have the unit's front door open.)

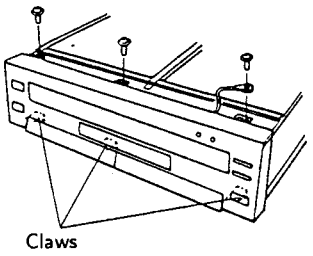
② Remove the tray stopper screw and the screw Ⓐ located on the right front side of the clamper arm (A).

③ Pull the tray straight out.



4. Front Panel

① Remove the three screws from the top of the front panel and lift the three claws.



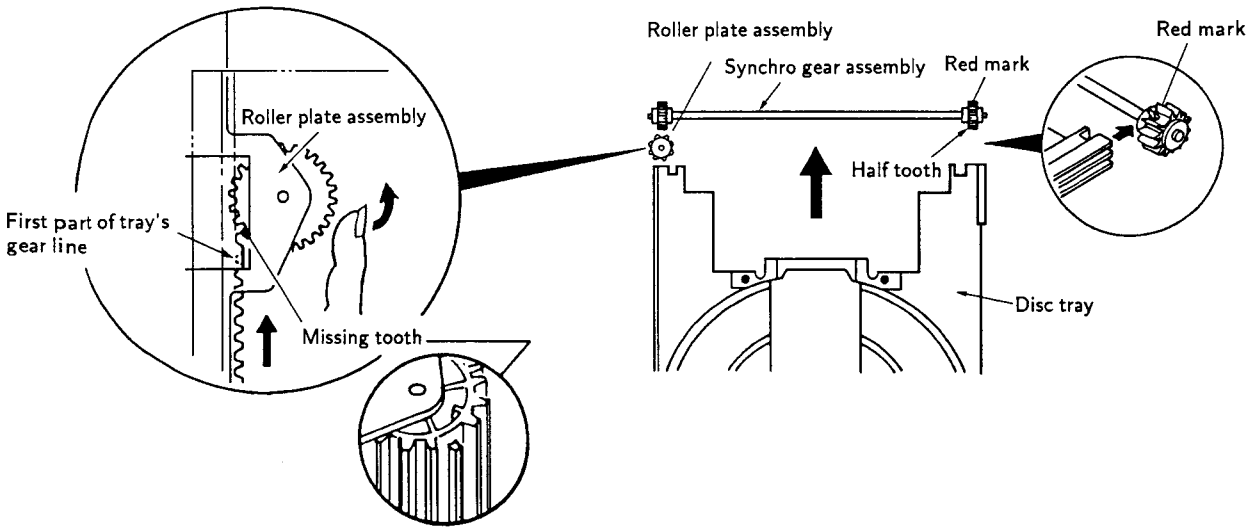
— How to install the disc tray —

① Set the player with the tray open.

② Align the synchro gear assembly with the disc tray so that missing gear cog (indicated by a red mark) of the gear is one tooth under the vertical position as shown below.

③ Set the roller plate gear so that the roller plate line intersects with the mid-point of missing tooth of the roller plate gear.

④ To insert the disc tray, make sure the first part of the tray's gear line is aligned with the roller plate assembly's missing gear tooth. Otherwise, the disc tray cannot be inserted. See the figure.



5. Clamper arm (B) and (A) assemblies

① Remove the two clamp springs.
② Unscrew the clamper locking screw, and remove the clamper.
③ Remove the AUDB assembly.(→P87)
④ While pulling the notch located at the right side of the clamp holder toward you, detach the clamp holder from the parallel link.
⑤ Raise the clamper arm (B) assembly in the direction of the arrow.
⑥ Remove the HDTV assembly.(→P87)
⑦ Remove the carriage assembly.(→P91)
⑧ Remove the washer Ⓐ, washer Ⓑ and nylon washer from the right side of the clamper arm (A) assembly, and the locking screw and the arm spring from the left side.

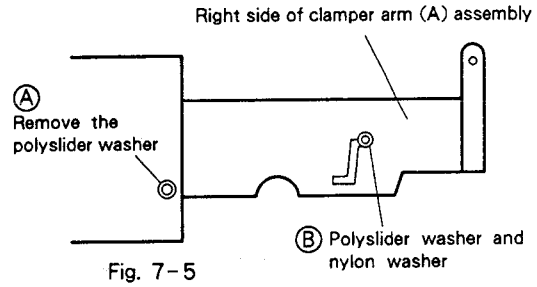
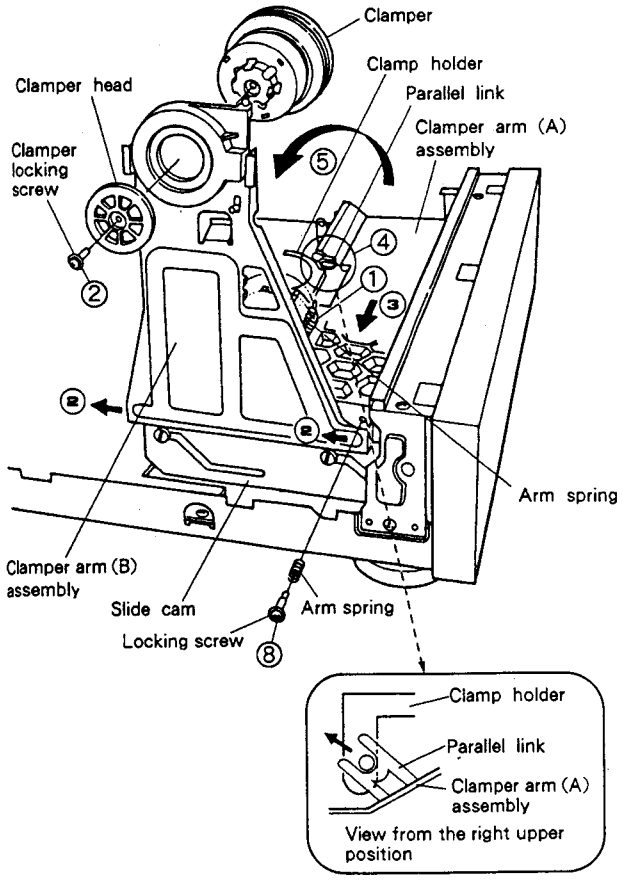
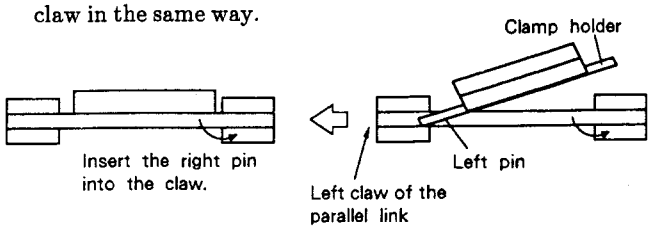


Fig. 7-5



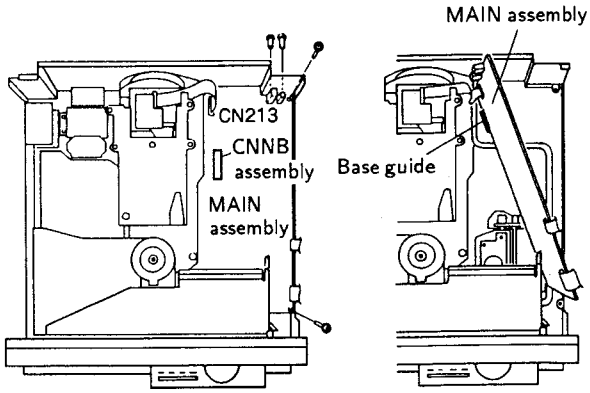
Clamper section mounting

① Insert the left pin of the clamp holder into the left claw of the parallel link.
② Insert the right pin of the clamp holder into the right claw in the same way.



6. MAIN assembly

① Remove the four MAIN assembly set screws.
② Disconnect the flexible cable (CN213) connecting the PREB assembly and the MAIN assembly.
③ Remove the CNNB assembly.
④ Disconnect all the connectors from the MAIN assembly.



MAIN assembly removal　　MAIN assembly diagnosis

Diagnosis of the MAIN assembly

· The bonnet and the HDTV assembly are to be removed.
① Slide and lift the board toward the right.
② Reconnect the connectors.
③ Assemble the board into the base guide and stand the board.

7. Mechanism assembly

Note : The bonnet should be removed first.

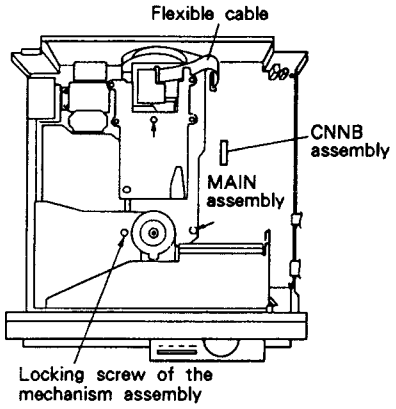
① Remove the upper side of the HDTV assembly.(→P87)

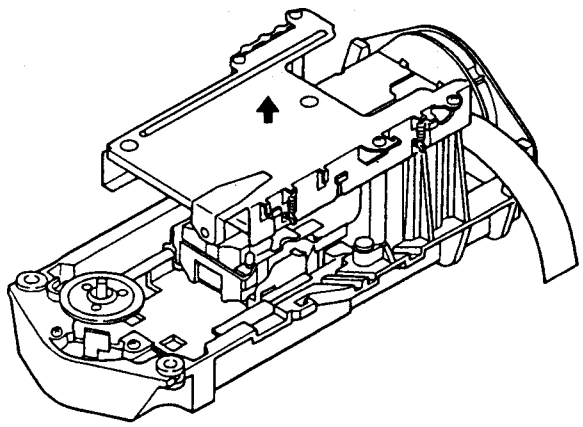
② Remove the disk tray.(→P88)

③ Remove the CN108 from the SYPS assembly, and also remove the CNNB assembly and the flexible cable from the MAIN assembly.

④ Remove the three locking screws from the mechanism assembly. Pull out the mechanism assembly by lifting its rear side.

Note : Completely remove the two front locking screws from the mechanism assembly.





8. Loading assembly

(Remove the loading assembly only when the motor is replaced. Gears can be removed from the top.)

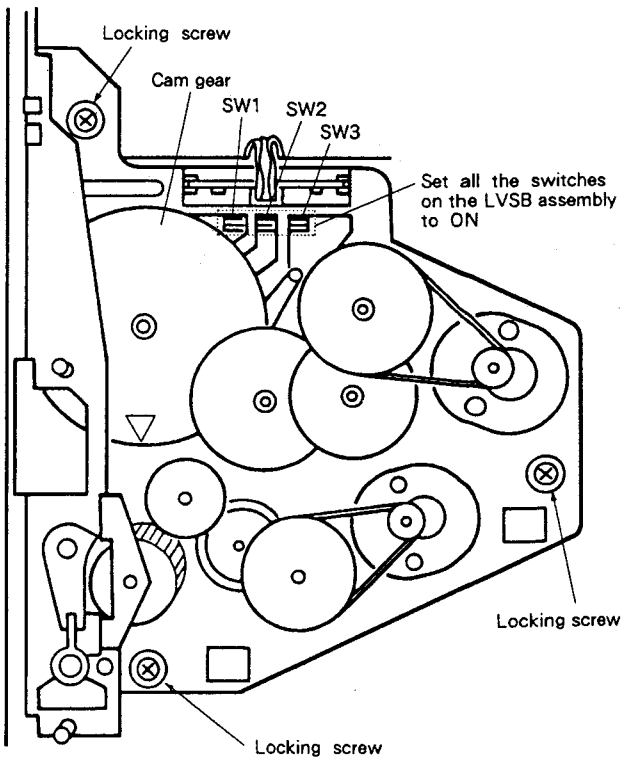
— How to install the cam gear —

Set all the switches on the LVSB assembly to ON and install the cam gear with the ▽ mark pointing to the front.

	SW1 V POS 0	SW2 V POS 1	SW3 V POS 2
Side A playback position	0	0	0
Side B clamp position	0	0	1
Door open position	1	0	1
Side B→Side A	1	1	0
Carry up	1	1	1

1 = ON 0 = OFF

Table :Switch position and the status of the unit (SW1 to 3 are named in this manual for convenience.)



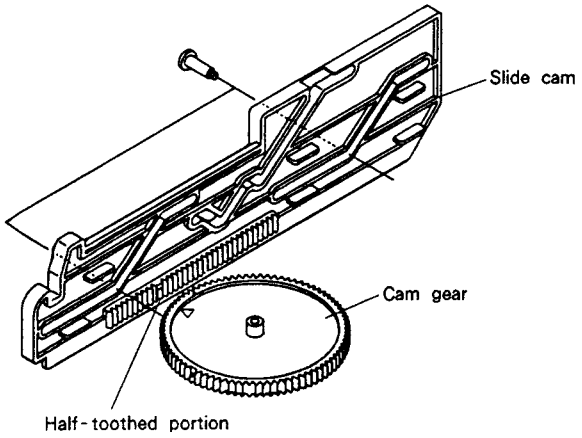
How to install the cam gear

— How to install the slide cam —

① Align the ▽ mark of the cam gear and the half-toothed gear of the slide cam.

② Fix the slide cam with the locking screw.

③ Fully pull out the slide cam in the front direction and fix the roller plate (L) to the slide cam with two screws.



Alignment of the cam gear and the slide cam

9. Carriage assembly

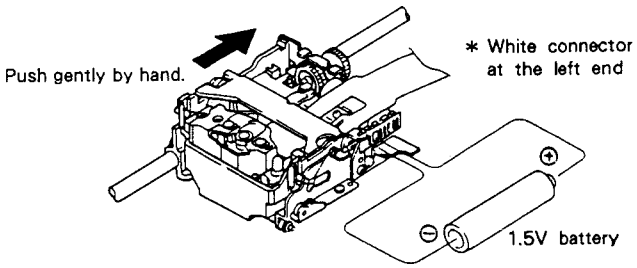
Note 1 : In this section, the R plate, G plate and the internal gear assemblies are together called the "turn plate"

Note 2 : The mechanism assembly should be removed first.

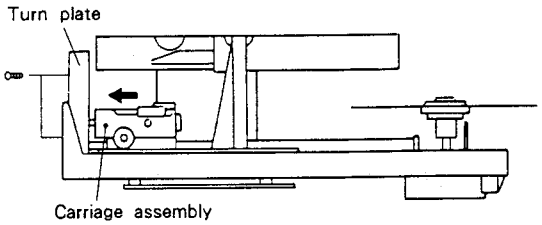
① Move the carriage assembly toward the shaft of the turn plate.

— How to move the carriage assembly —

Move the carriage assembly by pushing its end near the slider shaft gently by hand, or by connecting a 1.5V battery to the slider motor connector.



Move the carriage assembly



Carriage assembly turn position

② Disconnect the flexible cable which connects the PREB and MAIN assemblies from the CN901 of the PREB assembly.

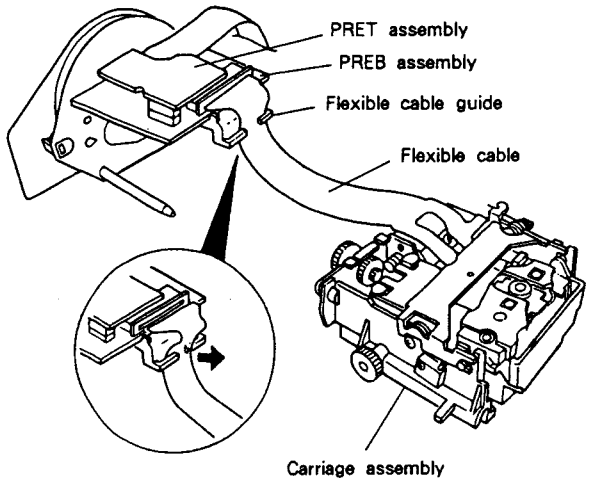
③ Disconnect the flexible cable which connects the pickup assembly and the PREB assembly from the CN902 of PREB assembly.

④ Remove the three screws from behind the turn plate assembly.

⑤ Remove the carriage assembly together with the turn plate from the mechanism assembly.

⑥ Remove the carriage assembly from the turn plate.

⑦ Disengage the flexible cable from the flexible cable guide on the back of the PREB assembly. Take care not to expose the unit to static electricity.



10. Pickup assembly

Note : The carriage assembly should be removed first.

① Check that the AF plate assembly is in the middle or bottom position of the shaft of the AF gear assembly. If not, connect the battery to the AF motor connectors to make the shaft of the AF gear assembly rotate until the AF plate assembly comes to the middle or bottom of the shaft.

② Remove the height springs on both sides on the height side.

③ Remove the AF stopper locking screw.

④ Remove the E-ring for holding pins from the pickup holder assembly.

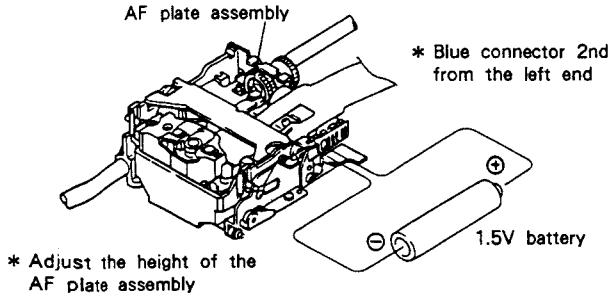
⑤ Remove the E-ring from the AF plate assembly.

⑥ While slightly lifting the AF arm on the AF gear assembly side, slide the AF arm and remove it.

⑦ Remove the two pickup connector locking screws.

⑧ Remove all four connectors from the connector board on the flexible cable.

⑨ Remove the pickup locking screw.



11. Tilt motor

Note : The carriage assembly should be removed first.

① Disconnect the tilt motor connector.

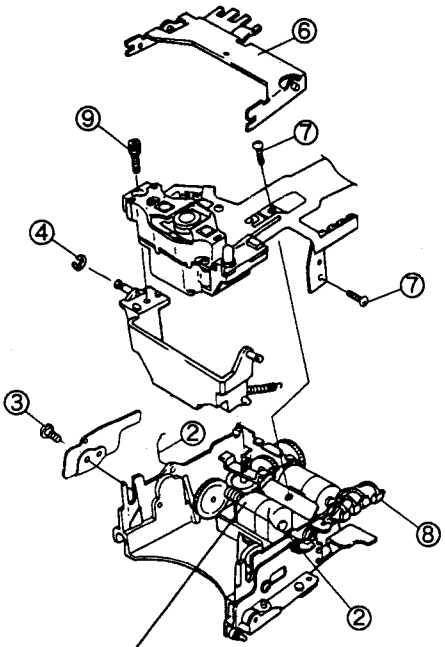
② Remove the screw fixing the tilt motor assembly-S and the carriage assembly from the bottom of the carriage assembly.

12. Height motor

Note : The pickup and tilt motor assemblies should be removed first.

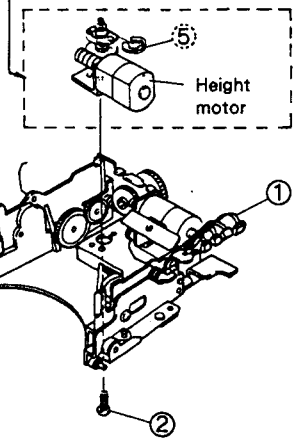
① Disconnect the height motor connector.

② Remove one screw which attaches the height motor assembly and the carriage assembly.

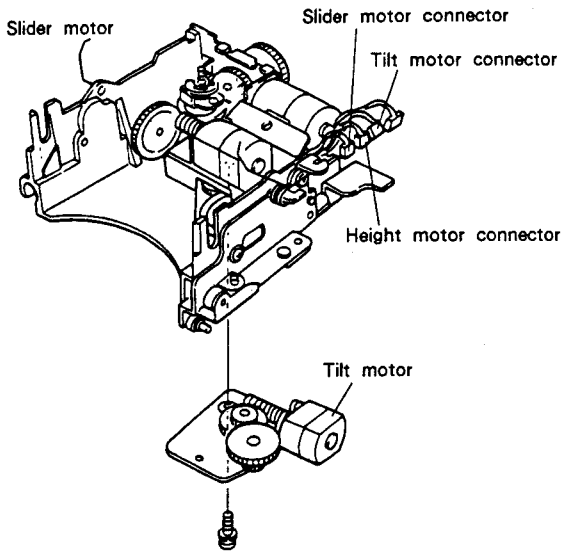


Note : The circled numbers in the figures correspond to those of the removing procedures.

10. How to remove the pickup assembly.



12. How to remove the height motor



11. How to Remove the tilt motor
13. How to remove the slider motor

13. Slider motor

Note : The pickup assembly, AF motor assembly and the tilt motor assembly should be removed first.

① Disconnect the slider motor connector.

② Remove the harness wrapped around the slider base.

③ Remove the two screws fixing the slider motor.

14. SYPS assembly

① Remove the three heat sink screws and the board screw.

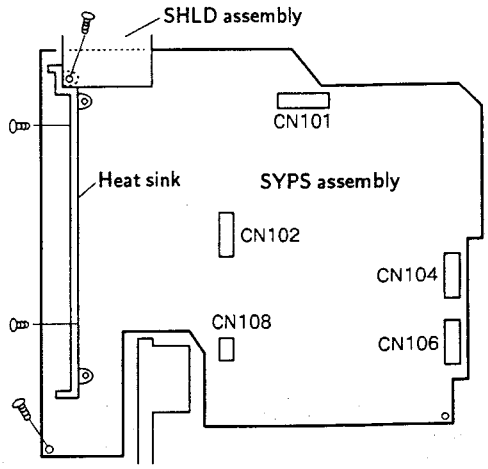
② Remove the SHLD assembly.

③ Unhook the board hook from the underside of the bottom panel.

④ Remove the SYPS assembly's CN102 and CN108 connectors.

⑤ Remove the SYPS assembly by lifting and sliding it from the left side.

Note : In step ⑤, turn over the board and connect the connector. You can then check it from the SYPS assembly's pattern side.

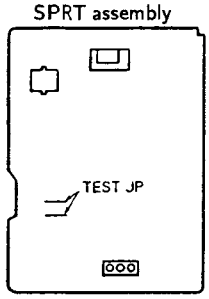


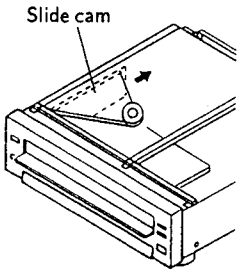
8.ADJUSTMENTS

8.1 TEST MODE

8.1.1 Initiation

① Remove the bonnet and disc tray.
② Short circuit the SPRT assembly's TEST JP. See the figure below.
③ Turn on the POWER switch.
④ Check if the test mode display is on the TV screen.
⑤ Disconnect the TEST JP.





Note : If the repair is to be done while the MAIN assembly is standing upward, the parallel jumper wire between the MAIN assembly and SPRT assembly may be disconnected.

— Disc playback procedure —

① Set a disc on the tray.
② Press the PLAY key and push the slide cam toward the rear.
③ The disc clamper will go down automatically and playback will begin.

8.1.2 Cancellation

CX + 9 or POWER off

Note :

- In the test mode, the clamper and EJECT operations will not function for safety reasons. However, if there is no disc, EJECT will be possible.
- When the playback switches from side B to side A, be aware that the clamper will go up.
- In the test mode, the initial search can also be cancelled by the CLEAR key.
- If a laser disc is in the player while in the test mode, it will take about 20 seconds after the POWER key is turned off until the power is actually cut off. (Forced POWER off)
- In the test mode, picture remain search and picture remain side change will not function. The search side will change with a blue-back screen.
- In the test mode, side B will not be played even after the end of side A playback. Side B can be played by pressing the SIDE B key.

8.1.3 Function

In the test mode, pressing CX and a numeric key will execute the respective functions below.

CX + 0 : All the FL (except for DISPLAY OFF LED) LEDs will light and the ROM version will be displayed on the TV screen (toggle).
(Since the FL's AC is turned ON/OFF by the DISPLAY OFF LED's drive output, the FL and DISPLAY OFF LED cannot be lit simultaneously.)

CX + 1 : After the error rate measuring LD or CD is measured for 15 seconds, the measurement (complementary value and C1 and C2 errors) will be displayed on the screen. During the measurement, the keys will not function.

CX + 2 : Tracking OPEN/CLOSE (toggle).

CX + 3 : CX ON/OFF (toggle)

CX + 4 : Forced tilt OFF.

CX + 5 : Tilt normal.

CX + 6 : 3.0 MHz oscillation of PD0011(toggle). Output from PORT3.

CX + 7 : Not used.

CX + 8 : Clearance of external RAM. (It will not be cleared immediately. It will be cleared the next time the power is turned on.) If the ROM is replaced, be sure to execute this function.

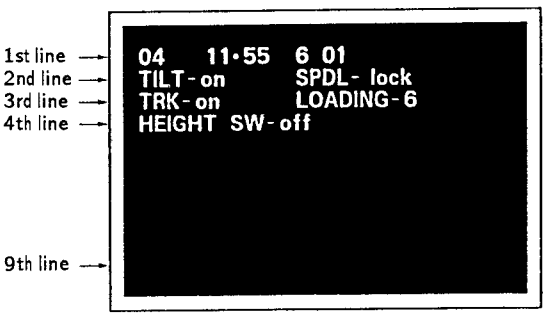
CX + 9 : Cancellation of test mode.

Other test mode functions

- Open startup
  If playback is executed after entering the test mode from the stop mode, startup will occur while tracking and tilt are off.
- Manual operation of slider and height
  While in the stop mode, the slider can be moved manually and the height can be adjusted up or down manually.
  Fast forward key : Moves the slider outward.
  Fast reverse : Moves the slider inward.
  (The CLD-95's remote control unit does not have fast forward and fast reverse functions. Therefore use the player's remote control unit.)
  Shuttle Fwd : Height UP
  Shuttle Rev : Height DOWN
- Side B startup
  When the test mode is set while in the trayout condition and the SIDE B key is pressed, startup can proceed from side B without any disc sensing of side A.
- Focus check
  When the PLAY key is pressed without any disc sensing, LD setup will be executed. The LD setup will have a maximum 9 seconds of focus lock. This can be used to check the focus system when there is a problem such as no disc sensing even when there is a disc.

8.1.4 Display

In the test mode, the TV monitor will display the status of the switches.



TV monitor

[1st line]

04 11 : 55 6 01

(Chapter Frame/Time)

(IMODE : General modes such as SETUP, PLAY, and SEARCH.)

0 : PARK
2 : OPEN
4 : SETUP
6 : PLAY
8 : SERACH

(SMODE : Specific sub modes in IMODE.)

[2nd line]

TILT-on (off)

SPDL-lock (unlock)

[3rd line]

TRK-on (off)

LOADING-6 (0-7)

[4th line]

HEIGHT SW-off (on)

[9th line]

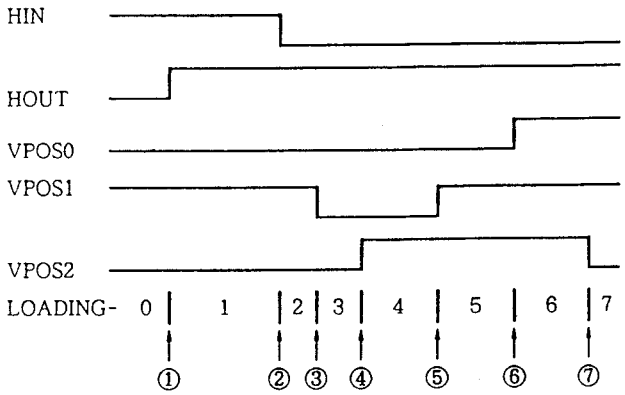
The 9th line will display one of two different items :

a. Error rate
000 0384

b. ROM version (PDK012A 91 _ _ _ _ _ _)

※In the 2nd line, SPDL-lock/unlock will monitor and display SPDL LOCK. Therefore, during CD playback, unlock will be displayed.

※In the 3rd line, LOADING will indicate the loading position.



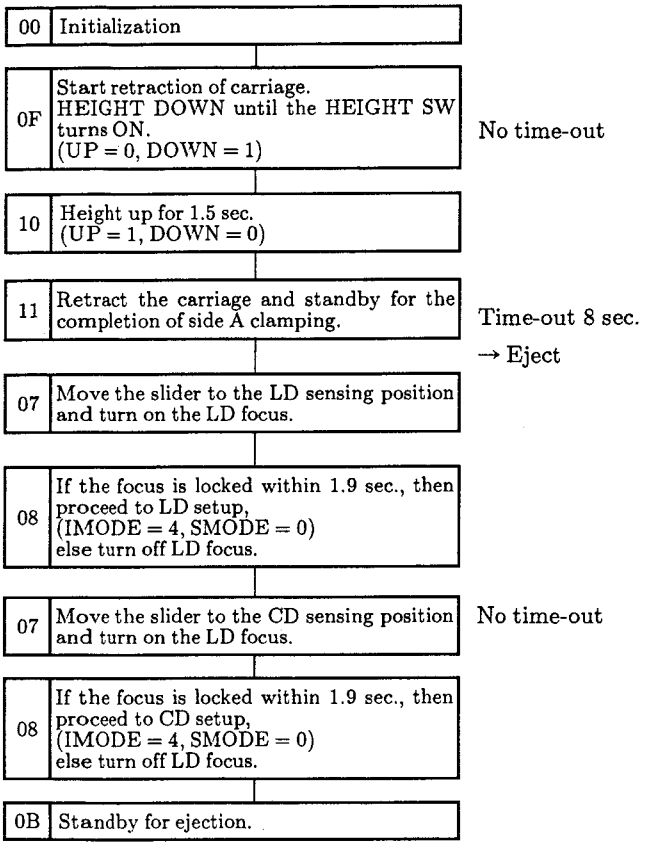
① Tray-out position
② Tray-in position
③ Door-open position
④ Tray-up position (Position during LD stop)
⑤ Turn over position from side B to side A
⑥ Side A clamp position
⑦ Side B clamp position

8.1.5 Microcomputer Software Description

(1) Loading

IMODE = 0

SMODE

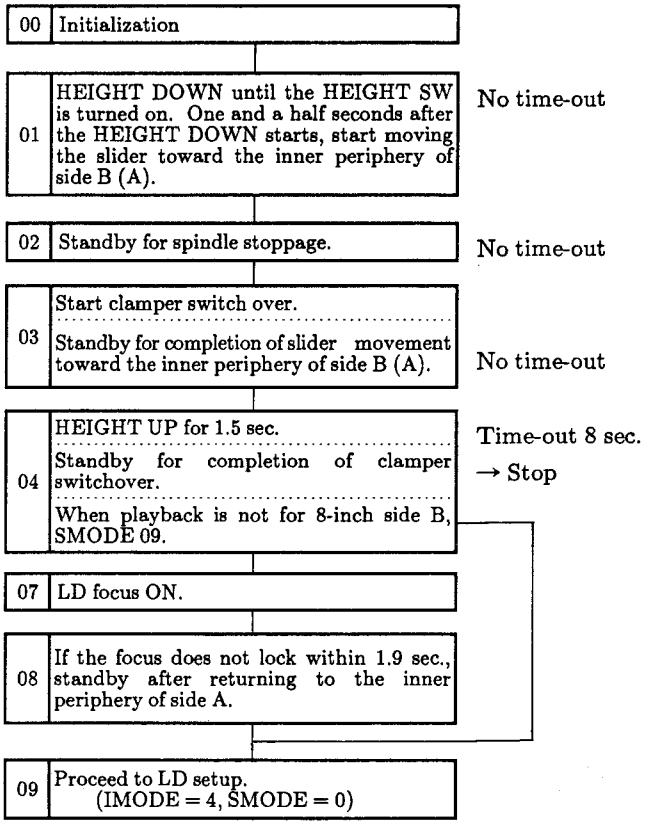


The HEIGHT UP/DOWN in SMODE 0F and 10 will be executed only after the power is turned on. Normally, after the carriage retraction starts in 0F, it will immediately standby for side A clamping in 11.

(2) Playback from side A to side B and from side B to side A

IMODE = 0

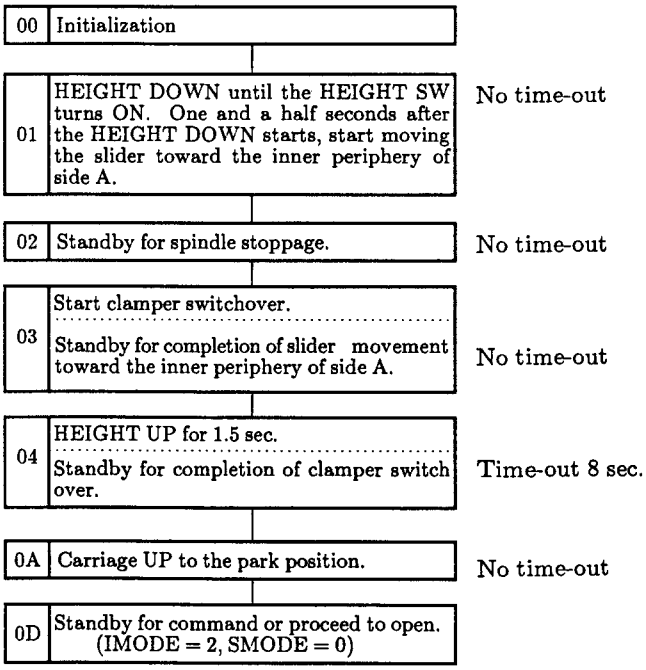
SMODE



(3) Side B playback → Stop or Eject

IMODE = 0

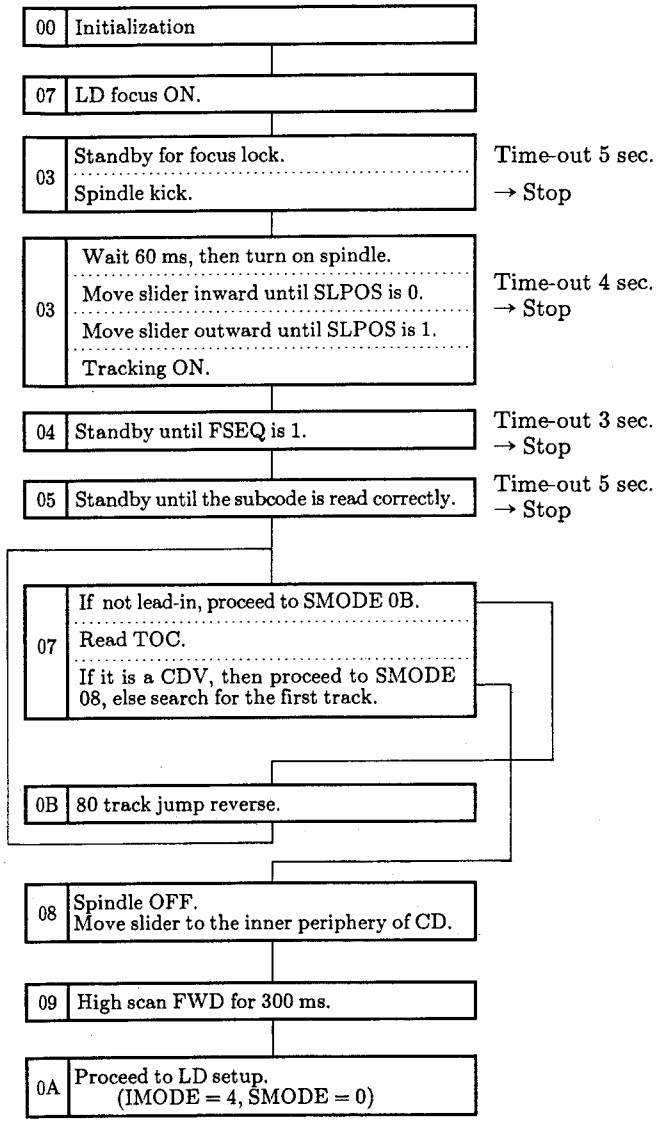
SMODE



(4) CD setup

IMODE = 4

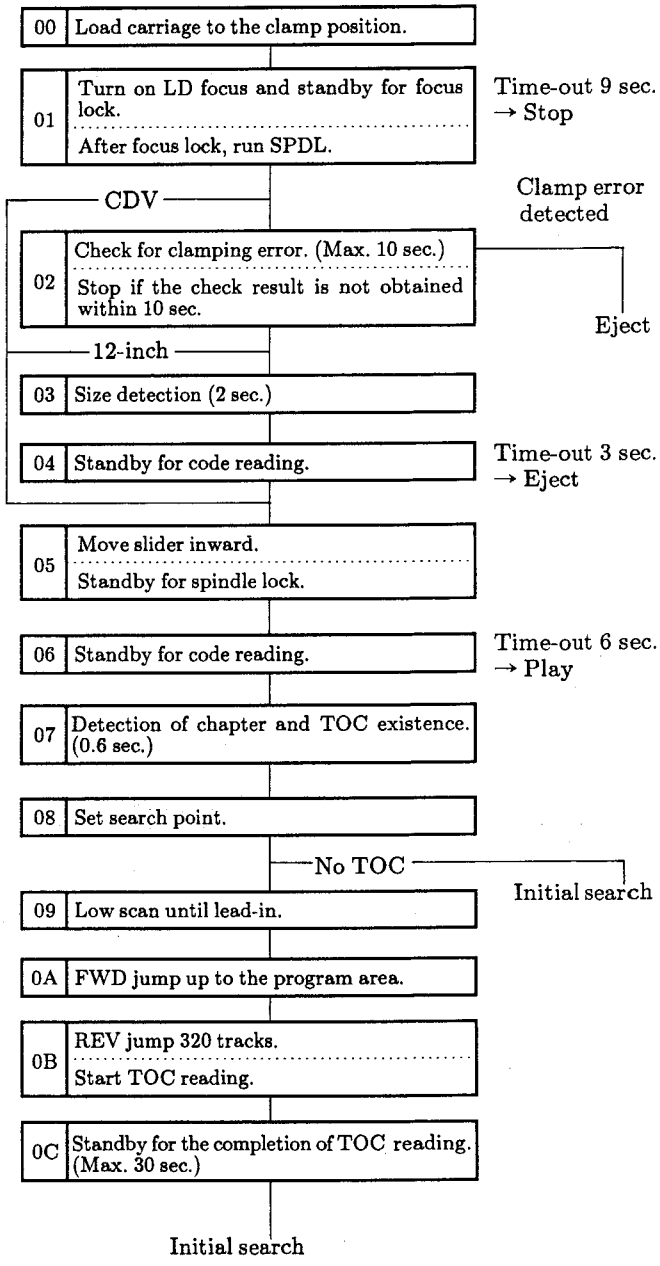
SMODE



(5) LD setup

IMODE = 4

SMODE



8.2 JIGS AND INSTRUMENTS REQUIRED FOR ADJUSTMENT

- Small ⊖ screwdriver (with a shaft of more than 10cm)
- Small Phillips⊕screwdriver (at least 15cm long)
- Hexagonal wrenches (2.0mm and 2.5mm)
- L-shaped Phillips⊕screwdriver
- 1.5V battery with lead wires
- Resistor (47k ohms)
- Dual-trace oscilloscope(with delay)
- AF oscillator
- Frequency counter
- LD test disc (GGV1003 or 8-inch F2)
- LDD disc (buy locally)
- CD test disc (YEDS-7)
- Shorting clip
- L-shaped eccentric screwdriver (GGV-129)

8.3 PREPARATIONS FOR ADJUSTMENT AND PRECAUTIONS

1) When replacing the pickup assembly, adjust in the following way :

– Carriage assembly in forward state –

1. Coarse grating adjustment, tracking balance adjustment
2. Crosstalk adjustment
   1) Adjustment of inclination of the pickup in the tangential direction and tilt servo balance adjustment
   2) LD focus error balance adjustment
3. Spindle motor eccentricity check
4. Spindle motor eccentricity adjustment
5. Fine grating adjustment
6. RF gain adjustment
7. FOCS servo loop gain adjustment
8. TRKG servo loop gain adjustment

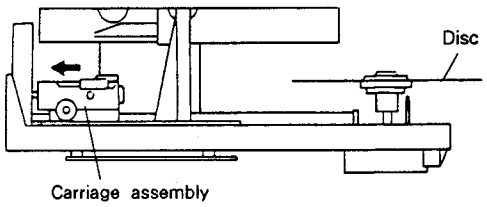
– Carriage assembly in reverse state –

9. Centering adjustment for side B play
10. Pickup tangential direction angle adjustment for side B play
11. Fine centering adjustment for side B play

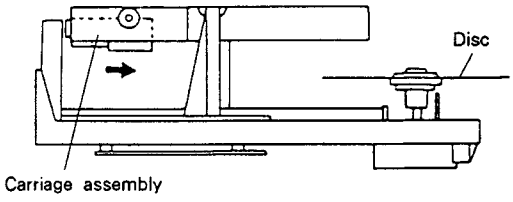
Note : The forward status of carriage assembly is when the carriage assembly is in the position to play side A of the disc. The reverse status is when it is in the position to play side B of the disc.

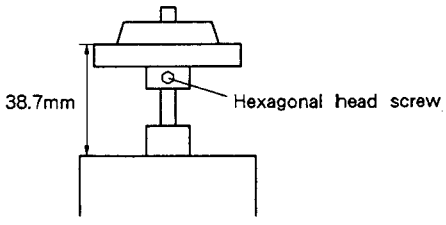
2) Adjust the height of the turntable when the spindle motor is replaced.

Carriage assembly forward state



Carriage assembly reverse state



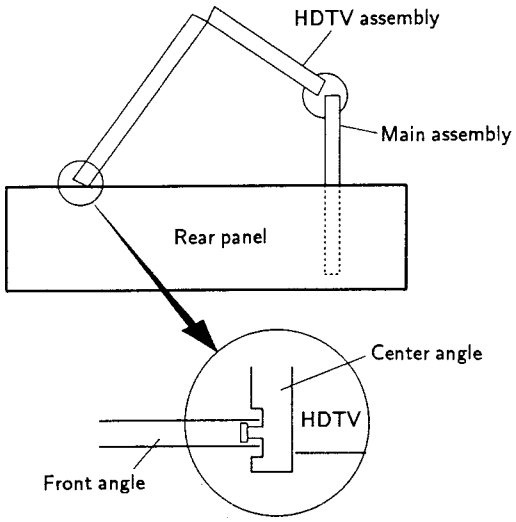


Loosen the hexagonal head screw and measure the height with a caliper.
Then retighten the screw.

Turntable height adjustment

3) Preparation for adjustment

Remove the bonnet and disc tray and stand the main assembly on the base guide. Then set the HDTV assembly on the front angle and rear panel.

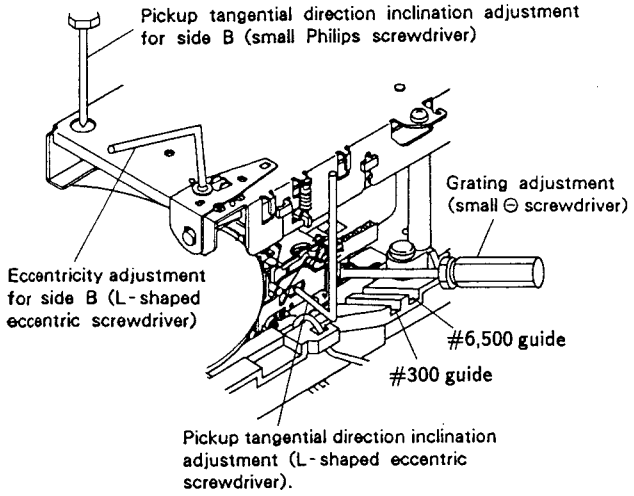


4) Side B playback

Side B can be played by pressing the SIDE B key on the front panel.

5) Where to insert the screwdriver when adjusting the pickup assembly

– Carriage assembly in forward state –



* The mechanical chassis' #6,500 and #300 guides on the bottom are for grating adjustment.

6) Test disc

The LD test disc used for mechanical adjustment and PREB assembly adjustment may either be the GGV1003 or 8-inch F2. The frame numbers given in the text are for the GGV1003 while those enclosed in parentheses are for the F2.
The LD test disc used for electrical adjustments can be either N series or F series. The frame numbers given in the text are for the N series while those enclosed in parentheses are for the F series.

7) Abbreviation in the text indicate the following

FOCS	=	Focus
TRKG	=	Tracking
SPDL	=	Spindle
SLDR	=	Slider
TAN	=	Tangential

8) After replacement of IC205 program PROM-S (PDK012A) on the MAIN assembly(CONT section)

After replacing IC205, press the CX and 8 keys on the remote control unit while in the test mode. This is to clear the external RAM. See "8.1 Test Mode."

9) The numbering in the connection diagram correspond to the numbering of the adjustment procedure.

10) All adjustments are to be made while the TILT servo is ON.

8.4 MECHANICAL ADJUSTMENT

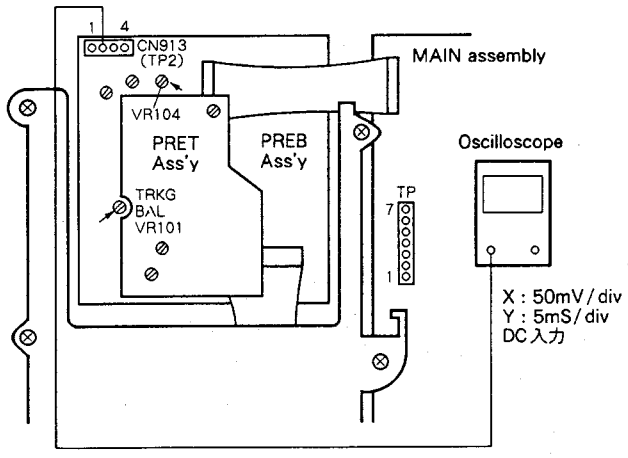
1. Coarse Grating and Tracking (TRKG) Balance Adjustment

Mechanical Adjustment

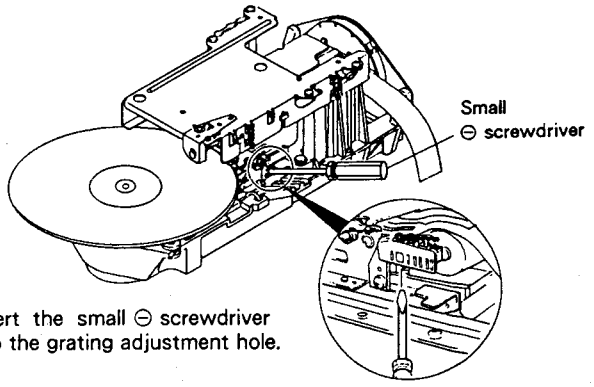
- Purpose : To adjust the laser beam which is divided into three by the grating to the optimum position on the track. Set the TRKG servo offset voltage to 0 V.
- When not properly adjusted : Disc playback will be impossible. During play, tracks may be skipped.

● Measuring instruments and jigs :	● Small ⊖ screwdriver (flat blade) ● Oscilloscope
● Measuring point :	● PREB assembly TP2-3(TRKG error)
● Test disc and player mode	● 8-inch LD test disc GGV1003··· #6,500 (F2··· #300) ● Still mode ● Test Mode (TRKG servo : Open) ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● Grating ● PREB assembly VR101 (TRKG balance)

Connection diagram



4. Connect an oscilloscope to TP2-2 in the PREB assembly.



5. Insert the small ⊖ screwdriver into the grating adjustment hole.

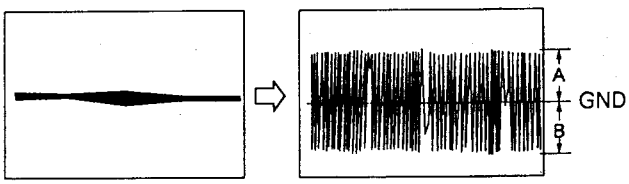


Fig-1 On-track position

Fig-2 Maximum amplitude A = B

Adjustment Procedure

< Coarse Grating Adjustment >

1. Play the LD test disc.
2. Move the pickup to frame #6,500 (#300) by scanning or searching.
3. Open the TRKG servo. (See page 94)
4. Connect an oscilloscope to TP2-2 in the PREB assembly and observe the waveform.
5. Insert the small ⊖ screwdriver into the grating adjustment hole. Turning the grating will allow you to vary the amplitude of the TRKG error waveform. Find the position where the waveform amplitude becomes minimum with a smooth envelope. (Fig-1) (This indicates that the 3-way split laser beams are directed onto the track. This is called the "on-track" position.)
6. Slowly turn the grating counterclockwise from the on track position until the waveform amplitude becomes maximum. (Fig-2)
7. Close the TRKG servo and check that a normal picture is displayed on the TV screen.

< TRKG Balance Adjustment >

1. Align the oscilloscope GND so that it comes to the center of the oscilloscope screen.
2. Adjust VR101 in the PREB assembly so that the positive and negative amplitude of the TRKG error waveform become equal. (Fig-2)

Note : If the tracking is so bad that it cannot be adjusted, set the PREB assembly's VR104 to the mechanical center. Then adjust the tracking.

2. Crosstalk Adjustment

(1) Pickup Tangential Direction Angle Adjustment and Tilt Servo Balance Adjustment (Pickup TRKG direction angle adjustment)

Mechanical Adjustment

● Purpose : To adjust the pickup tangential direction angle so as to minimize crosstalk.

● When not properly adjusted : Noticeable crosstalk will appear.

● Measuring instruments and jigs :	● TV monitor ● L-shaped eccentric screwdriver (GGV-129) ● Oscilloscope
● Measuring point :	● Crosstalk on the screen, MAIN assembly TP1(RF)
● Test disc and player mode	● 8-inch test disc GGV1003···#115(F2···#104), #2,701(Black) ● Still mode ● Test Mode (TRKG servo : Close)
● Positions to be adjusted	● The carriage assembly should be in the forward state. ● Pickup tangential direction angle adjustment screw ● PREB assembly VR103 (TILT gain) and VR104 (TILT balance).

Connection diagram

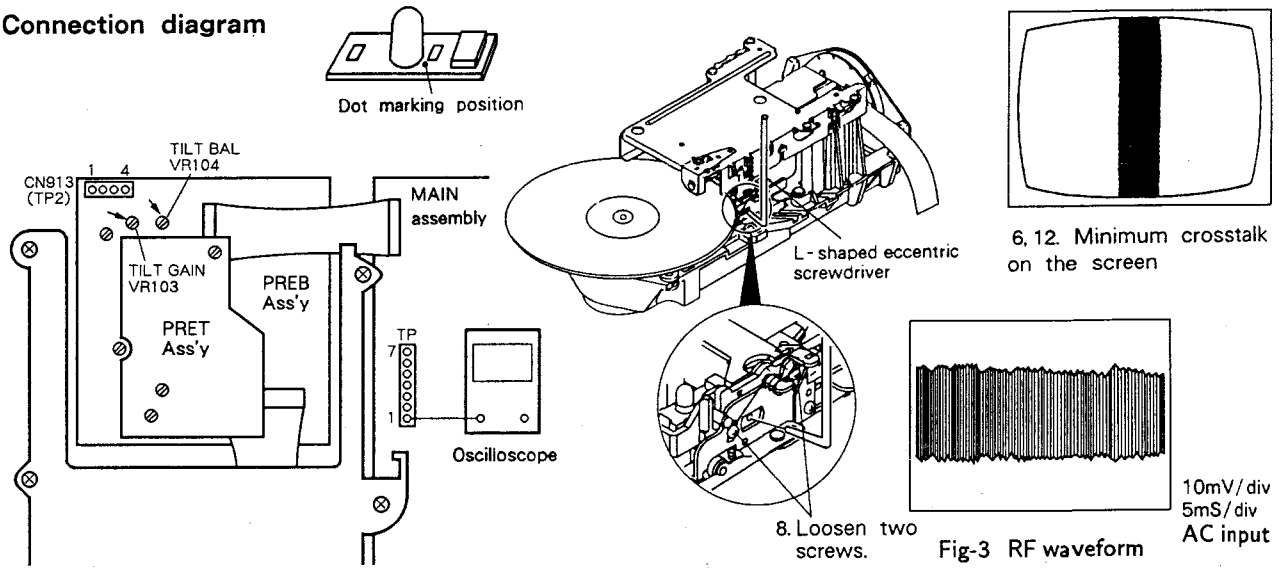


Fig-3 RF waveform

Adjustment Procedure

1. Check the color of the dot marked on the top of the tilt sensor, at the side of the post.
   Some players have red and blue dots. According to the color of the dot, adjust the PREB assembly VR103 as follows :
   Red dot : Turn VR103 fully counterclockwise.
   Blue dot : Turn VR103 fully clockwise.
   No dot : Set VR103 to the center position.

—Pickup Tangential Direction Angle Adjustment—
(Pickup TRKG directional angle adjustment)

2. Make sure the TILT servo is ON. Set the TILT servo balance adjustment VR and VR104 to the mechanical center.
3. Connect TP1 to an oscilloscope.
4. Search for #2,701 and look at the RF waveform. (Fig-3)
5. Adjust VR104 on the PREB assembly to maximize the waveform's amplitude. Turn VR104 slowly to allow the TILT servo to keep pace. (When VR104 is adjusted, the pickup assembly's TRKG directional angle will change.)
6. Search for #115 (#104) and make sure there is no conspicuous crosstalk on the TV monitor.
7. If the crosstalk on the TV monitor is conspicuous, do the following tangential adjustment.

— Pickup tangential direction angle adjustment —

8. Loosen the two screws as shown in the connection diagram.
9. Search for #2,701 and look at the RF waveform. (Fig-3)
10. Insert an L-shaped eccentric screwdriver into the pickup tangential direction angle adjustment hole.
11. While referring to the RF waveform, adjust the tangential direction to maximize the waveform's amplitude.
12. Search for #115 (#104) and make sure there is no conspicuous crosstalk on the TV monitor.
13. After completing the adjustment, tighten the two screws.

Note : If the pickup tangential direction angle has been changed on the side A playback side, be sure to execute the following : "3. Spindle Motor Centering Check," "9. Centering Adjustment for Side B Play," and "10. Pickup Tangential Direction Angle Adjustment for Side B Play."

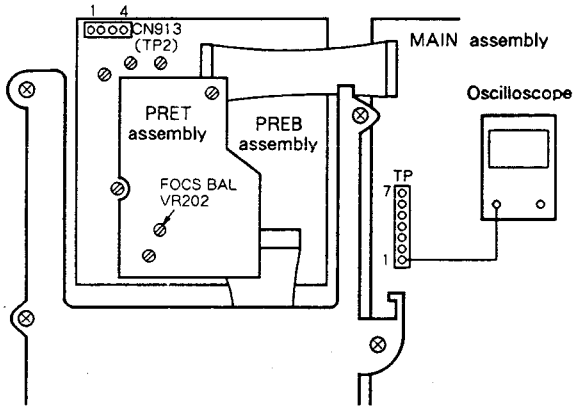
(2) LD FOCS Error Balance Adjustment

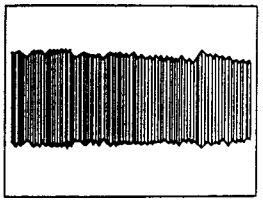
Mechanical Adjustment

- Purpose : To ensure that the FOCS servo maintains the objective lens at the optimum distance from the disc surface.
- When not properly adjusted : Crosstalk will be generated.

● Measuring instruments and jigs :	● TV monitor ● Oscilloscope
● Measuring point :	● Video signal output terminal, MAIN assembly TP1(RF)
● Test disc and player mode	● 8-inch test disc GGV1003···#115(F2···#104), #2,701(Black) ● Still mode
● Positions to be adjusted	● The carriage assembly should be in the forward state. ● PRET assembly VR202 (FOCS balance)

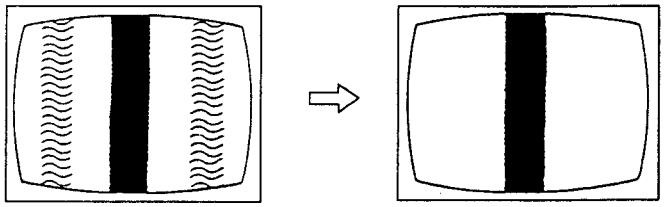
Connection diagram





10mV/div
5mS/div
AC input

Fig-4 RF waveform



Crosstalk generated on the screen

Minimum crosstalk

3. Adjust VR202 in the PRET assembly for minimum crosstalk.

4. Adjust so taht the crosstalk on the screen is minimum.

Adjustment Procedure

1. Connect TP1 to an oscilloscope.
2. Search for #2,701 and look at the RF waveform. (Fig-4.)
3. Adjust VR202 on the PRET assembly to maximize the waveform's amplitude.
4. Search for #115 (#104) and make sure there is minimal crosstalk on the TV monitor. If the crosstalk still exceeds the allowable amount even after VR202 is adjusted, execute "Pickup tangential direction angle adjustment" and "TILT servo balance adjustment."

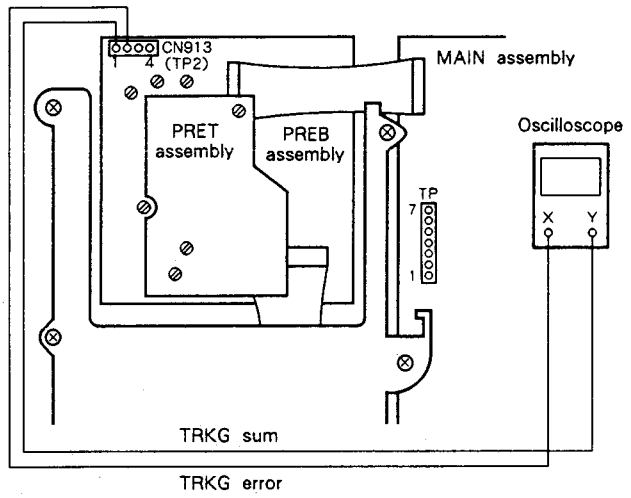
3. Spindle Motor Centering Check

Mechanical Adjustment

● Purpose : To check that the center of the spindle motor is on the orbit of the laser beam.

● Measuring instruments and jigs :	● Oscilloscope
● Measuring point :	● PREB assembly TP2-2 (TRKG error) and TP2-1 (TRKG sum)
● Test disc and player mode	● 8-inch LD test disc GGV1003···#100 and #22,000 (#100 and #22,000 with a commercially available "karaoke" LD disc) ● Play mode ● CD test disc (YEDS-7) ● Test Mode (TRKG servo : Open)
● Positions to be adjusted	● The carriage assembly should be in the forward state. ● Check the Lissajous figure

Connection diagram



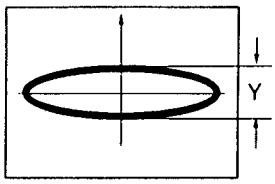


Fig-5 Lissajous figure of the inner track of the disc (CD)

Check that Y = Y'

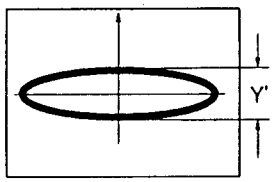


Fig-6 Lissajous figure of the outer track of the disc (CD)

5. The Y-axis of the Lissajous figure should be the same for the inner and the outer tracks.

Note : LD test disc F2 is not suitable for this adjustment because the recorded portion with a track pitch of 1.52μm is present only around inner tracks #1 to #500.

Checking Procedure

1. Play the 8-inch LD test disc.
2. Move the pickup to frame #22,000 by scanning or searching, then open the TRKG servo.
3. Connect TP2-2 in the PREB assembly to the X-input (CH-1) of the oscilloscope and TP2-1 to the Y-input (CH-2).
   Set the oscilloscope to the X-Y mode and observe the Lissajous figures of the TRKG error signal and the TRKG sum signal.
4. Write down the Y-axis amplitudes of the Lissajous figures. (Fig-5)
5. Close the TRKG servo and search frame #100, .then open the TRKG servo again to observe the Lissajous figure.
   At this time, check that the Y-axis amplitude of the Lissajous figure is the same as that noted in step 4. (Fig-6)
6. Remove the 8-inch LD test disc from the player, then load the CD test disc and repeat the checking procedures steps 1 to 5. However, it is not necessary to specify the inner or outer track positions of the disc. If the Y-axis amplitude of the Lissajous figure is different for the inner and outer tracks, perform "4. Spindle Motor Centering Adjustment"

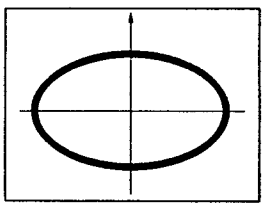


Fig-7 Lissajous figure when not properly adjusted

4. Spindle Motor Centering Adjustment

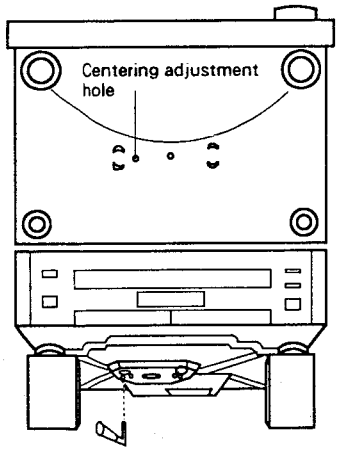
Mechanical Adjustment

● Purpose : To adjust so that the center of the spindle motor is on the orbit of the laser beam.

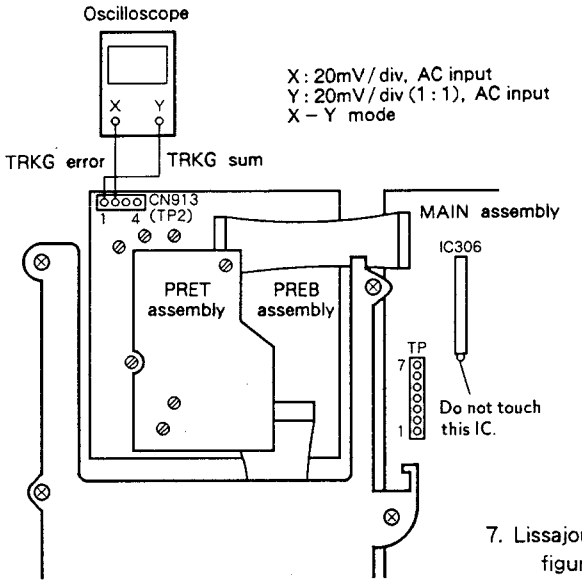
● When not properly adjusted : Track skips, or searching takes too long.

● Measuring instruments and jigs :	● L-shaped Phillips ⊕ screwdriver ● Oscilloscope
● Measuring point :	● PREB assembly TP2-2 (TRKG error) and TP2-1 (TRKG sum)
● Test disc and player mode	● 8-inch LD test disc GGV1003···#100 and #22,000 (Or a commercially available "karaoke" LD disc) ● Play mode ● Test Mode (TRKG servo : Open/Close)
	● CD test disc (YEDS-7) ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● Spindle motor centering adjustment hole

Connection diagram



7. Adjust the centering adjustment hole.



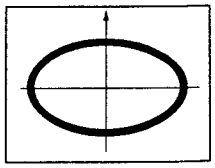


Fig-8

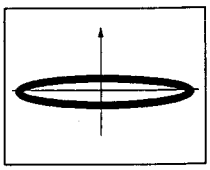


Fig-9

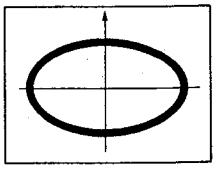


Fig-10

7. Lissajous figure.

Adjustment Procedure

Note 1: Before making the adjustment, remove the rear panel.

2: For the same reasons given in the "Note" in section 8.4.3, the LD test disc F2 is not suitable for this adjustment.

1. Connect TP2-2 in the PREB assembly to the X-input (CH-1) of the oscilloscope and TP2-1 to the Y-input (CH-2).
2. Play the 8-inch LD test disc and search frame #22,000.
3. Open the TRKG servo and observe the Lissajous figures of the TRKG error signal and the TRKG sum signal.
4. Fine-ajust the grating so that the Y-axis amplitude of the Lissajous figure is minimized. (Fig-9)
5. Close the TRKG servo and search frame #100.
6. Open the TRKG servo again and observe the Lissajous figure and write the Y-axis amplitude.(Fig-8)
7. Insert the L-shaped Philips screwdriver into the adjusting hole from the left bottom of the unit, and turn slowly so that the Y-axis amplitude of the Lissajous figure is reduced.
   After the Y-axis amplitude of the Lissajous figure is minimized, turn the adjusting screw further until the amplitude becomes the same shape as that observed in procedure 6. (Figs 8, 9 and 10)
8. Close the TRKG servo, and move the pickup assembly to the outer track of the disc (#22,000), then perform the adjustments in steps 4 to 6 again.
9. Re-open the TRKG servo and observe the Lissajous figure to check that the Y-axis amplitude is minimum. (Fig-9)
   If the Y-axis amplitude of the Lissajous figure is larger than specified, repeat the adjustment procedures from steps 5 to 8.
10. After adjustment is complete, perform the adjustment in "3. Spindle Motor Centering Check" item 6.

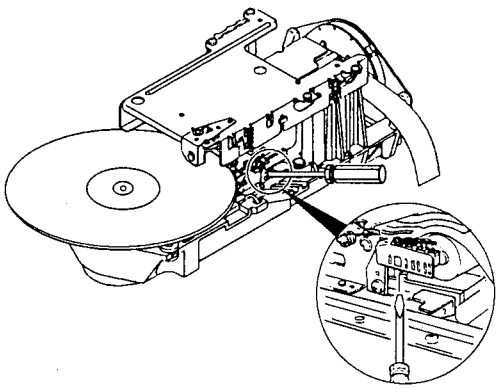
5. Fine Grating Adjustment

● Purpose : To fine adjust the grating so that the two tracking beams for the TRKG servo are projected in the optimum positions on the tracks being played.

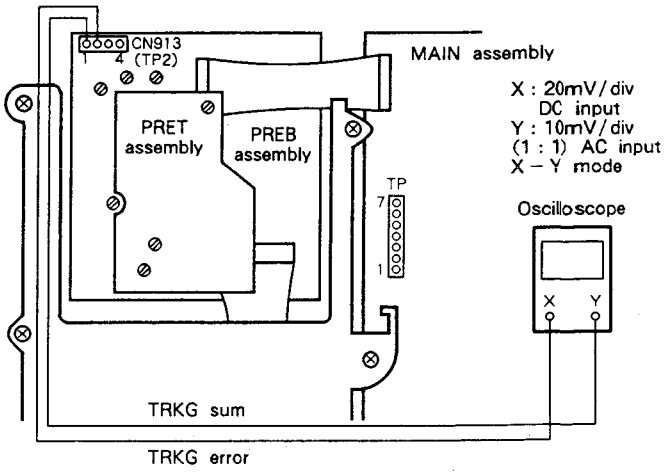
● When not properly adjusted : During play, tracks may be skipped.

● Measuring instruments and jigs :	● Oscilloscope ● Small ⊖ screwdriver
● Measuring point :	● PREB assembly TP2-2 (TRKG error) and TP2-1 (TRKG sum)
● Test disc and player mode	● 8-inch LD test disc GGV1003···#6,500 (F2···#300) ● Still mode ● Test Mode (TRKG servo : Open)
● Positions to be adjusted	● The carriage assembly should be in the forward state. ● Grating

Connection diagram



3. Insert the small ⊖ screwdriver into the grating adjustment hole to fine adjust it.



Adjustment Procedure

1. Play the LD test disc and search frame #6,500 (#300), then open the TRKG servo.
2. Connect TP2-2 in the PREB assembly to the X-input (CH-1) of the oscilloscope and TP2-1 to the Y-input (CH2).
   Set the oscilloscope to the X-Y mode and observe the Lissajous figures of the TRKG error signal and the TRKG sum signal.
3. Insert the small ⊖ screwdriver into the grating adjustment hole, and fine-adjust the grating so that the Y-axis amplitude of the Lissajous figures is minimized. (Fig-11)
   If the grating is turned too much and the optimum position can no longer be found, repeat the "1. Coarse Grating Adjustment".
4. Select the oscilloscope's X-input (CH-1) and check that the positive and negative amplitudes of the TRKG error signal are equal. (Fig-12)
   If they are not, repeat the "1. Tracking Balance Adjustment".
5. Close the TRKG servo and check that the picture (image) on the TV screen is normal.

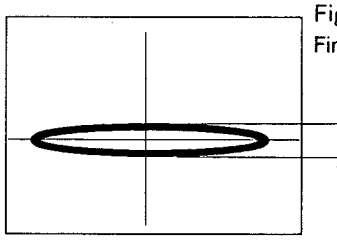


Fig-11
Fine grating adjustment

3. Y-axis amplitude of Lissajous figure becomes minimum.

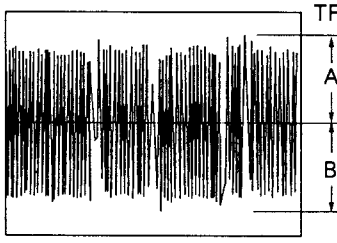


Fig-12
TRKG balance adjustment

6. RF Gain Adjustment

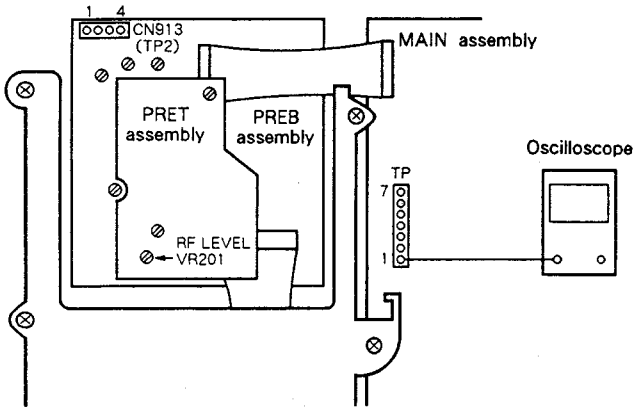
Mechanical Adjustment

● Purpose : To adjust the RF signal amplitude to the optimum value.

● When not properly adjusted : Dropout occurs frequently.

● Measuring instruments and jigs :	● Oscilloscope
● Measuring point :	● Main assembly TP1 (RF signal)
● Test disc and player mode	● 8-inch LD test disc GGV1003··· #15,000 (F2··· #15,000) ● Still mode ● Test Mode (TRKG servo : Close) ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● PRET assembly VR201 (RF gain)

Connection diagram



2. Connect MAIN assembly TP1 to an oscilloscope.

Adjustment Procedure

1. Play the LD test disc and search frame #15,000 (#15,000).
2. Connect an oscilloscope to MAIN assembly TP1 (RF signal) and observe the RF signal.
3. Adjust PRET assembly VR201 so that the amplitude of the RF signal becomes 300 mV ± 50 mV. (Fig-13)

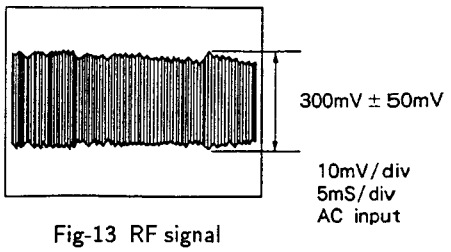


Fig-13 RF signal

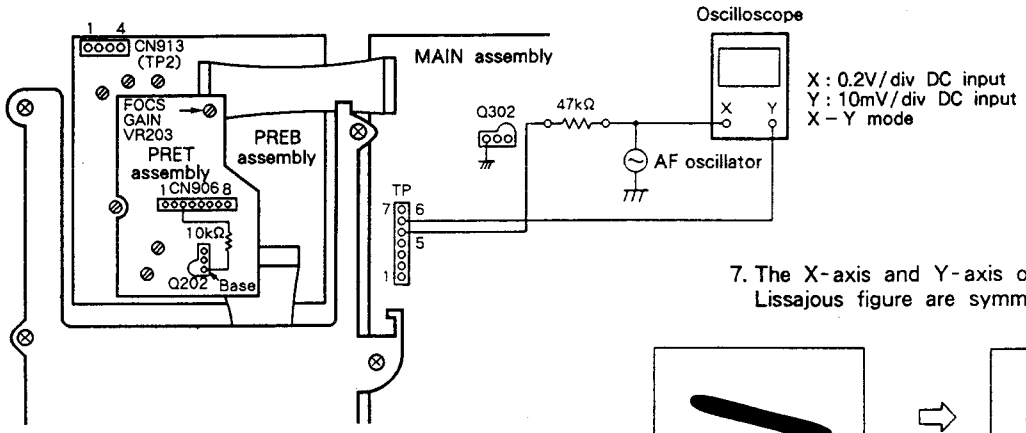
7. FOCS Servo Loop Gain Adjustment

● Purpose : To set the loop gain of the FOCS servo to the optimum value.

● When not properly adjusted : Performance deteriorates.

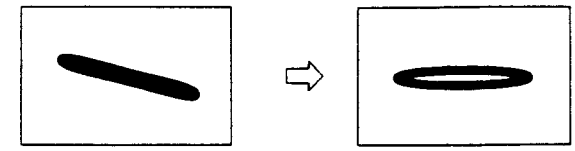
● Measuring instruments and jigs :	● Oscilloscope ● AF oscillator ● Resistor (47k ohms)
● Measuring point :	● MAIN assembly TP5 (FOCS error) and TP6 (FOCS gain)
● Test disc and player mode	● 8-inch LD test disc GGV1003···#15,000 (F2···#15,000) ● Still mode ● TRKG servo : Close ● The FOCS motor protection circuit is disabled. ● The carriage assembly should be in the forward state.
● Positions to be adjusted	● PRET assembly VR203

Connection diagram



1. Ground the gate of MAIN assembly Q302
2. Connect MAIN assembly TP5, TP6, resistor, AF oscillator, and the oscilloscope as shown.

7. The X-axis and Y-axis of the Lissajous figure are symmetrical.



Adjustment not complete　　Properly adjusted

Fig-14

Adjustment Procedure

1. Ground the Q302 gate of the MAIN assembly to stop the function of the focus motor protection circuit.
2. Connect MAIN assembly TP5 to the oscilloscope's X-input (CH-1) via the resistor and AF oscillator, and TP6 to the Y-input (CH-2), as shown in the above diagram.
3. Set the AF oscillator output to 1.7 kHz/6 Vp-p for GGV1003, or 1.8kHz/6Vp-p for F2, according to the test disc used.
4. Play the 8-inch LD test disc and search frame #15,000 (#15,000).
5. Set the oscilloscope to the X-Y mode and observe the Lissajous figure.
6. Adjust VR203 in the PRET assembly so that the Lissajous figure is symmetrical on both the X-axis and Y-axis of the oscilloscope. (Fig-14)
7. Release the grounding from Q302 in the MAIN assembly.

Note : If the AF oscillator output does not exceed 6Vp-p, reduce the value of the resistor (47k ohms) in the above diagram, for easier observation of the Lissajous figure. (not below 33k ohms)

8. TRKG Servo Loop Gain Adjustment

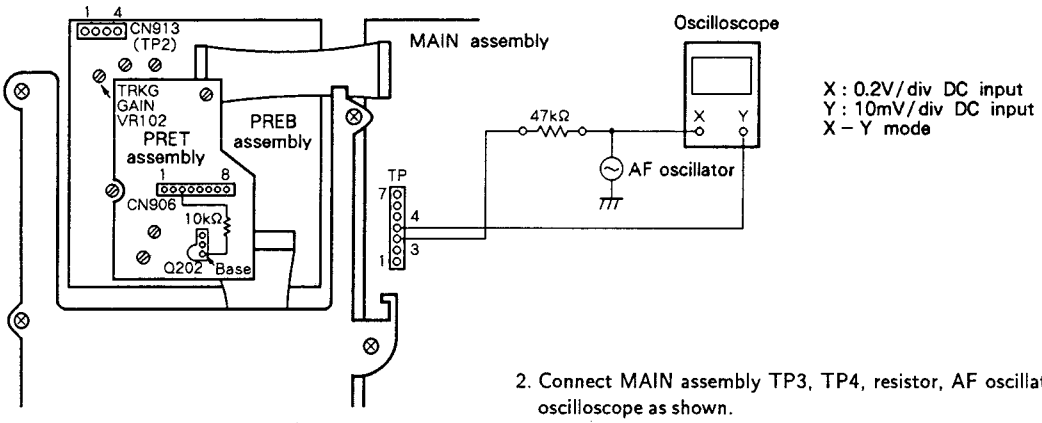
Mechanical Adjustment

● Purpose : To set the loop gain of the TRKG servo to the optimum value.

● When not properly adjusted : Performance deteriorates

● Measuring instruments and jigs :	● Oscilloscope ● Resistor (47k ohms) ● AF oscillator
● Measuring point :	● MAIN assembly TP3 (TRKG error) and TP4 (TRKG gain)
● Test disc and player mode	● 8-inch LD test disc GGV1003···#15,000 (F2···#15,000) ● Still mode
● Positions to be adjusted	● TRKG servo : Close ● The carriage assembly should be in the forward state. ● PREB assembly VR102

Connection diagram



2. Connect MAIN assembly TP3, TP4, resistor, AF oscillator and the oscilloscope as shown.

Adjustment Procedure

1. Play the LD test disc and search frame #15,000(#15,000).
2. Connect MAIN assembly TP3 to the oscilloscope's X-input (CH-1) via the resistor and AF oscillator, and TP4 to the Y-input (CH-2), as shown in the above diagram.
3. Set the AF oscillator output to 3.0kHz/6Vp-p for GGV1003, or 2.7kHz/6Vp-p for F2, according to the test disc used.
4. Set the oscilloscope to the X-Y mode and observe the Lissajous figure.
5. Adjust VR102 in the PREB assembly so that the Lissajous figure is symmetrical on both the X-axis and Y-axis of the oscilloscope. (Fig-15)

Note: If the AF oscillator output does not exceed 6Vp-p, reduce the value of the resistor (47k ohms) in the above diagram, for easier observation of the Lissajous figure. (not below 33k ohms)

5. The X-axis and Y-axis of the Lissajous figure are symmetrical.

Adjustment not complete

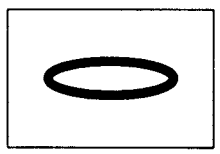


Fig-15 Properly adjusted

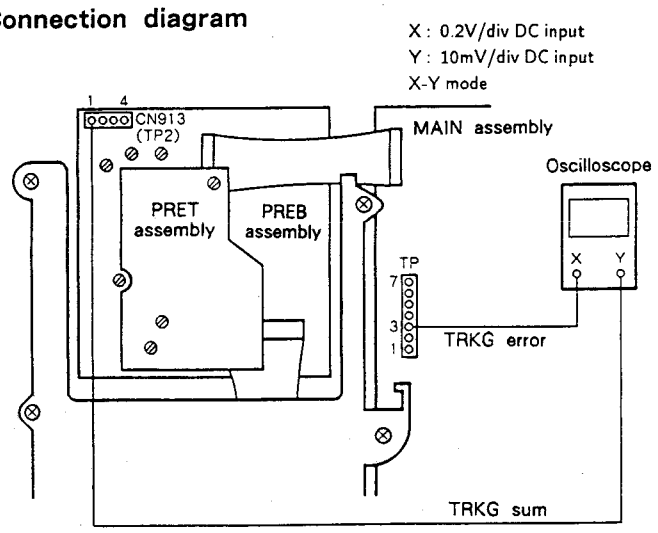
9. Centering Adjustment for Side B Play

● Purpose : To set the center of the spindle motor on the path of the laser beam when playing the side B of the disc.

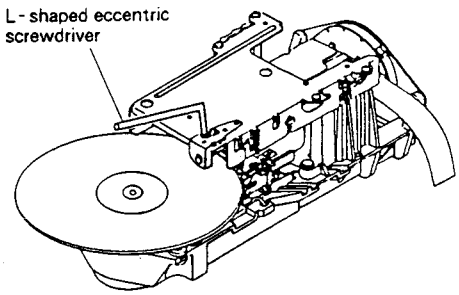
● When not properly adjusted : Tracks skipped, longer searching time or searching is impossible when playing side B of the disc.

● Measuring instruments and jigs :	● L-shaped eccentric screwdriver (GGV-129) ● Oscilloscope
● Measuring point :	● MAIN assembly TP3 (TRKG error), PREB assembly TP2-1 (TRKG sum)
● Test disc and player mode	● 8-inch LD test disc GGV1003···#100 (F2···#300) ● Play mode ● The carriage assembly should be in the reverse state. ● Test mode (TRKG servo : Open/Close)
● Positions to be adjusted	● Centering adjustment hole for side B

Connection diagram



2. Centering adjustment for side B play.



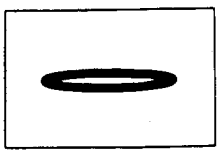


Fig-16

4. X-axis of Lissajous figure maximum.

Adjustment Procedure

1. Turn the LD test disc upside-down (change from side A to side B).
2. Set the oscilloscope to the X-Y mode, and connect MAIN assembly TP3 (TRKG error) to the oscilloscope's X-input (CH-1) and PREB assembly TP2-1 (TRKG sum) to the Y-input (CH-2).
3. Play the LD test disc and search frame #100 (#300), then open the tracking servo.

Note : If the center is too eccentric on side B of the disc, since searching will be impossible on side B, open the TRKG servo when the carriage assembly moves to the side B play position and searches around frame #100.

4. While observing the Lissajous figure on the oscilloscope, insert the eccentric screwdriver into the centering adjustment hole for side B and adjust it so that the X-axis amplitude of the Lissajous figure is minimized (on-track position). Then turn the eccentric screwdriver clockwise further until the X-axis amplitude of the Lissajous figure becomes maximum. (Fig-16)

Note : When "2 (1) Tangential Direction Angle Adjustment" is performed with the pickup in the forward state, perform "10. Pickup Tangential Direction Angle Adjustment for Side B Play" and "Centering Adjustment for Side B play".

10. Pickup Tangential Direction Angle Adjustment for Side B Play

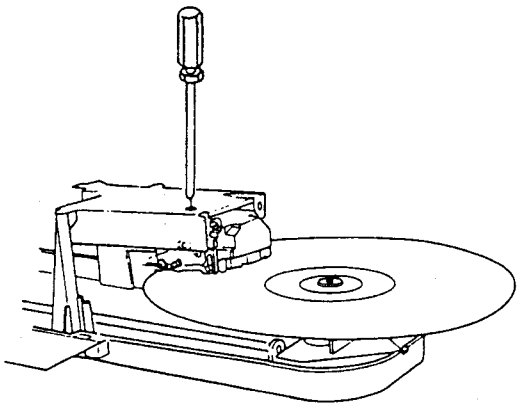
Mechanical Adjustment

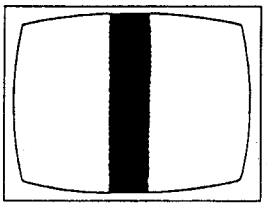
● Purpose : To adjust the crosstalk to become minimum in the tangential direction angle of the pickup assembly when playing side B of the disc.

● When not properly adjusted : Crosstalk is significant.

● Measuring instruments and jigs :	● TV monitor ● Small Philips ⊕ screwdriver
● Measuring point :	● Monitor screen
● Test disc and player mode	● 8-inch LD test disc GGV1003···#115 (F2···#104) ● Still mode
● Positions to be adjusted	● The carriage assembly should be in the reverse state. ● Pickup tangential direction angle adjustment screw

Connection diagram





2. Minimum crosstalk

Adjustment Procedure

1. Play the LD test disc and search frame #115 (#104).
2. Check if crosstalk appears on the screen of the TV monitor, and adjust the pickup tangential direction angle adjustment screw so that the crosstalk is minimized.
3. After steps 1 and 2 have been completed, perform "9. Centering Adjustment for Side B Play" again.

Note : When the pickup tangential direction angle for side B play is varied by this adjustment, the center of the disc for side B may be shifted slightly. As a countermeasure, perform the centering adjustment again.

11. Fine Centering Adjustment for Side B Play

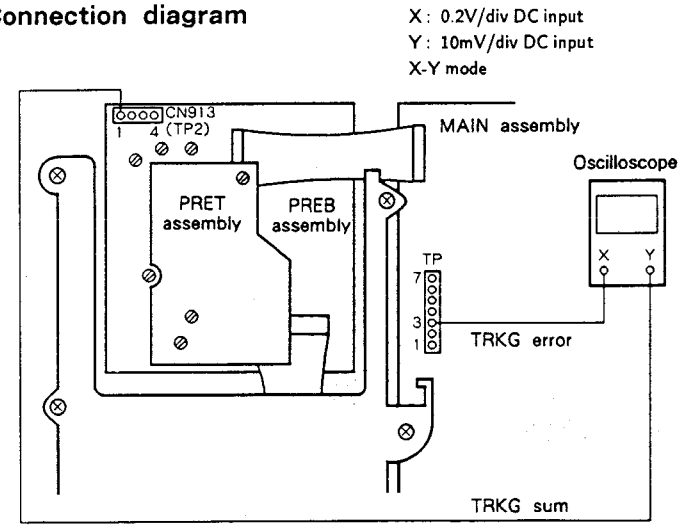
Mechanical Adjustment

● Purpose : To set the center of the spindle motor on the track of the laser beam when playing the side B of the disc.

● When not properly adjusted : Tracks skipped when playing side B of the disc.

● Measuring instruments and jigs :	● Oscilloscope ● L-Shaped eccentric screwdriver (GGV-129)
● Measuring point :	● MAIN assembly TP3 (TRKG error), PREB assembly TP2-1 (TRKG sum)
● Test disc and player mode	● 8-inch LD test disc GGV1003··· #100 (F2··· #300) ● Test mode (TRKG servo : Open)
● Positions to be adjusted	● Play mode ● The carriage assembly should be in the reverse state. ● Centering adjustment hole for side B

Connection diagram



1. Fine centering adjustment for side B play.

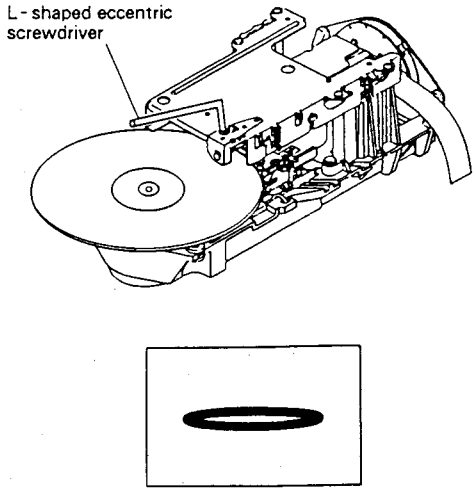


Fig-17

4. X-axis of Lissajous figure maximum.

Adjustment Procedure

1. Set the oscilloscope to the X-Y mode, and connect MAIN assembly TP3 (TRKG error) to the oscilloscope's X-input (CH-1) and PREB assembly TP2-1 (TRKG sum) to the Y-input (CH-2).
2. Play the LD test disc and search frame #100 (#300).
3. Open the TRKG servo.
4. While observing the Lissajous figure on the oscilloscope, insert the eccentric screwdriver into the centering adjustment hole for side B and adjust it so that the X-axis amplitude of the Lissajous figure becomes maximum. (Fig-17)

8.5 ELECTRICAL ADJUSTMENT

Adjustment of LDAB and RDAB Assemblies

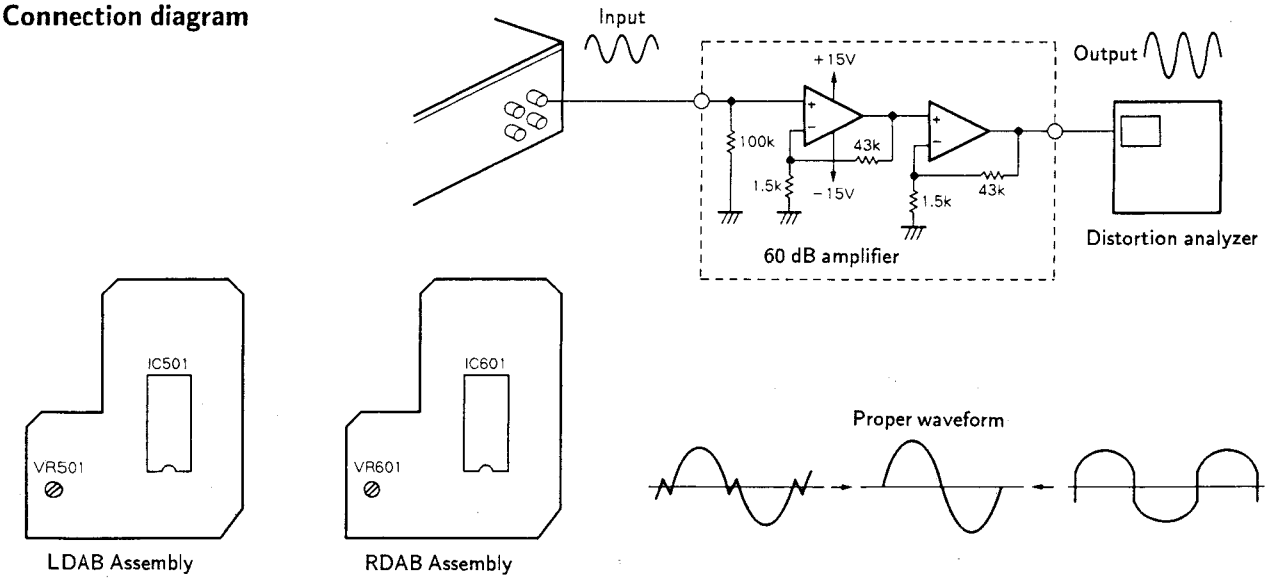
MSB Adjustment (Reference)

Adjustment of LDAB and RDAB Assemblies

- Purpose : To minimize digital audio distortion.
- When not properly adjusted : Distorted digital audio.

● Measuring instruments and jigs :	● Distortion analyzer ● 60 dB amplifier ● Oscilloscope
● Measuring point :	● Audio output terminal
● Test disc and player mode :	● Playback CD test disc (YEDS-7) track No. 20 (1 kHz, −60 dB)
● Positions to be adjusted :	● VR501 on LDAB assembly and VR601 on RDAB assembly

Connection diagram



Adjustment Procedure

1. Connect the 60 dB amplifier between the audio output terminal and the distortion analyzer.
2. Playback track No. 20 (1 kHz, −60 dB) on the CD test disc (YEDS-7).
3. Adjust VR501 on the LDAB assembly and VR601 on the RDAB assembly to minimize the distortion.

If a distortion analyzer is not available, follow the procedure below.

1. Connect an oscilloscope to the audio output terminal by connecting the 60 dB amplifier between the two.
2. Playback track No. 20 on the CD test disc (YEDS-7) and look at the audio output waveform on the oscilloscope.
3. Adjust VR501 and VR601 so that the waveform on the oscilloscope becomes a distortionless sine wave.

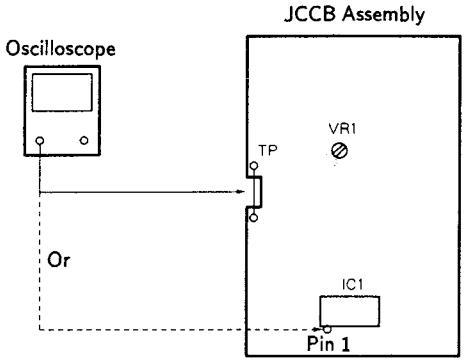
VCXO Error Adjustment

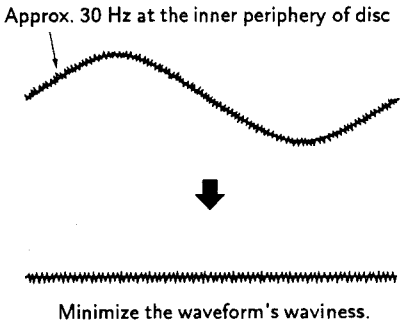
Adjustment of JCCB assembly

- Purpose : To minimize the LDD clock's eccentric jitter.
- When not properly adjusted : Increased eccentric jitter.

• Measuring instruments and jigs :	• Oscilloscope
• Measuring point :	• JCCB assembly TP or IC1 pin 1
• Test disc and player mode :	• Playback LDD disc (inward) • Normal mode
• Positions to be adjusted :	• JCCB assembly VR1

Connection diagram

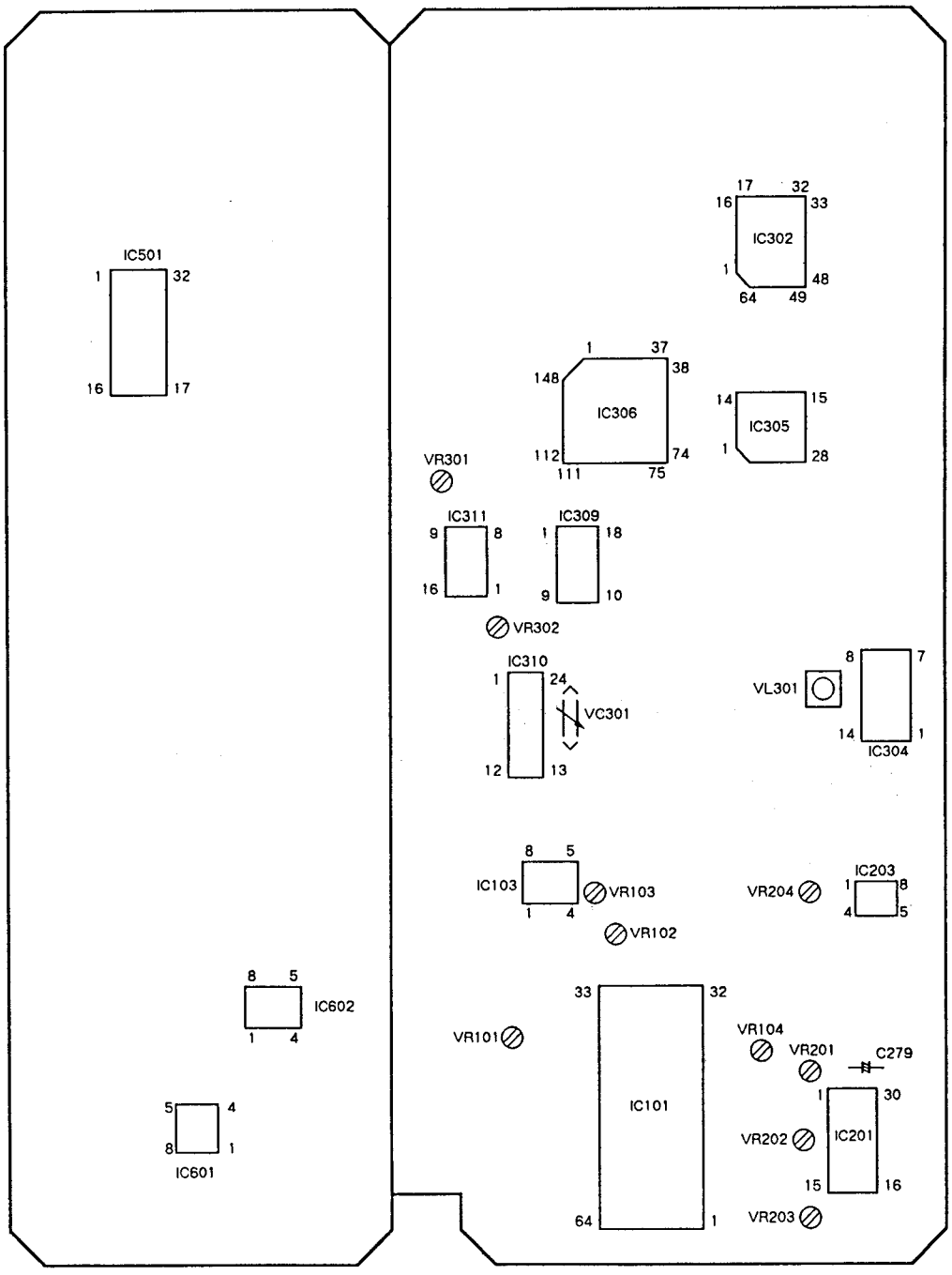




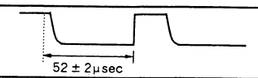
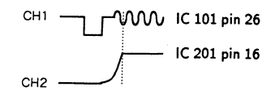
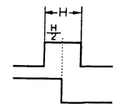
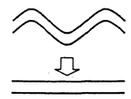
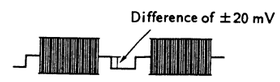
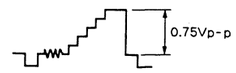
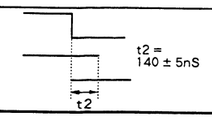
Adjustment Procedure

1. Playback the inner periphery of the LDD disc.
2. Connect the oscilloscope to the JCCB assembly TP or to IC1 pin 1.
3. Adjust VR1 on the JCCB assembly to minimize the waveform's waviness.

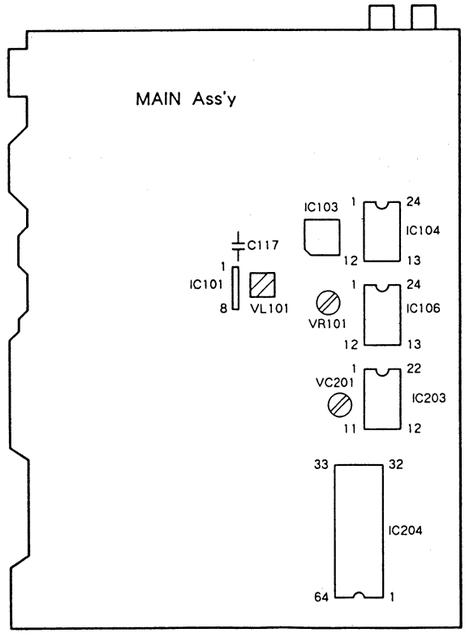
HDTV Ass'y



● ADJUSTMENT POINTS

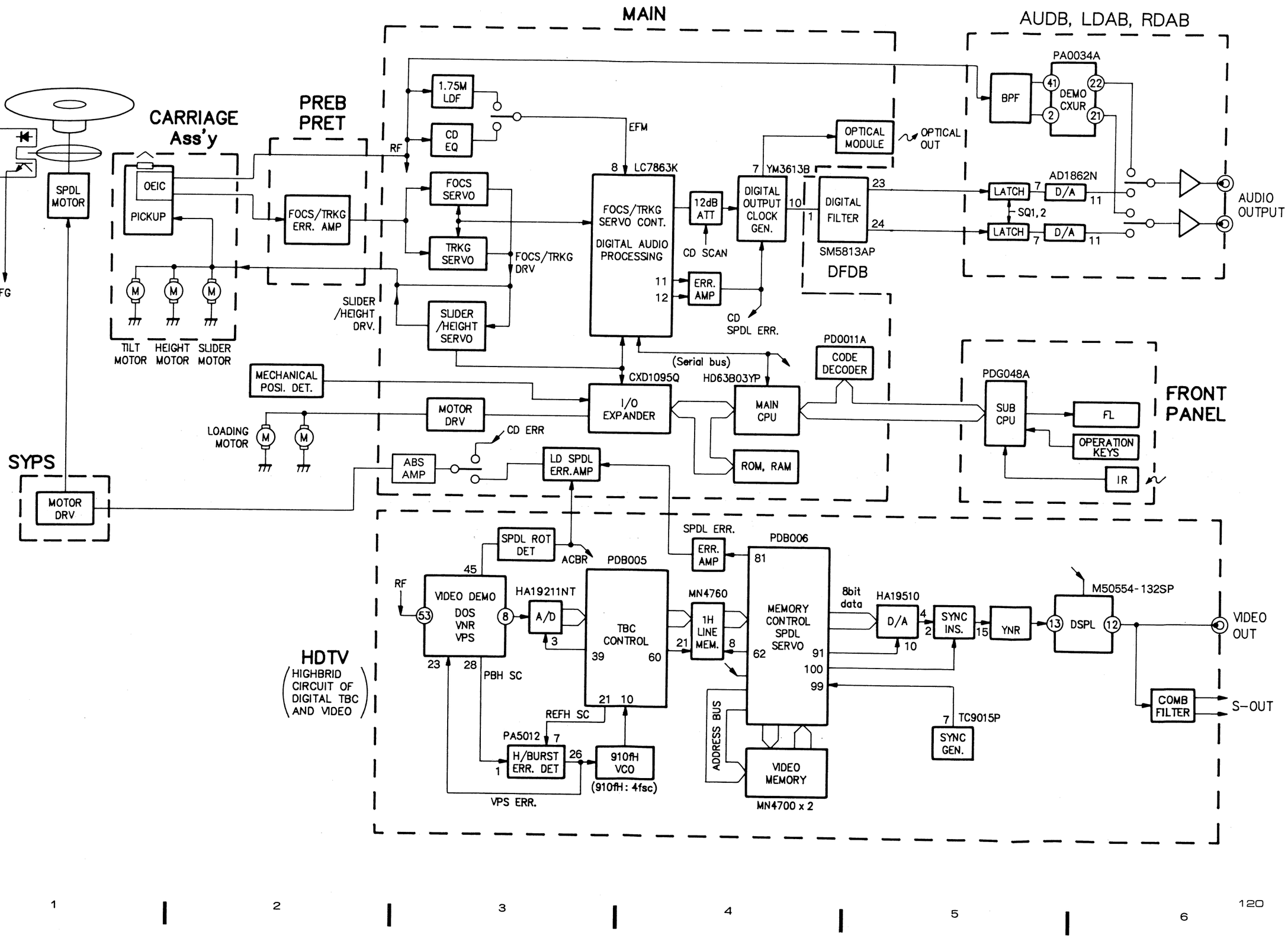
	Assembly Adjustment Name	Adjustment Point	Measurement Point	Adjustment Description	Player Condition	Oscilloscope	Remarks
	HDTV assembly						
1	Master clock adjustment	VC 301	IC 310 pin 2	With the player's power ON, adjust VC 301 so that IC 310 pin 2 on the HDTV assembly becomes 3.579545 MHz ±200 Hz.	Power ON	Frequency counter	
2	Half H rejection adjustment	VR 201	IC 201 pin 3	During LD disc playback, adjust VR 201 so that the pulse width of IC201 pin 3 on the HDTV assembly becomes 52 ±2 μsec.	LD disc playback	X : 2 V/div Y : 10 μsec/div	
3	Burst gate timing adjustment	VR 203	IC 101 pin 26 IC 201 pin 16	During LD disc playback, adjust VR 203 so that the timing of IC 201 pin 16's pulse startup is the same as the timing of the first wave of IC 101 pin 26's video signal burst.	LD disc playback		
4	VCO offset adjustment	VL 301	IC 203 pin 1	During LD disc playback, adjust VL 301 so that IC 203 pin 1's DC level becomes 0 ±100 mV.	LD disc playback		0±100 mV
5	Detection level adjustment	VR 101	IC 602 pin 6 IC 602 pin 5	During the playback of #4,801 (#5,401) on the LD test disc, adjust VR 101 so that the voltage of IC 602 pin 5 becomes pin 6's voltage of +218 mV ±20 mV.	Playback of #4,801 (#5,401) on LD test disc		Pin 5 voltage = Pin 6 voltage + 218 mV ±20 mV
6	Trapezoid inclination adjustment	VR 202	IC 302 pin 1 IC 201 pin 5	While C 279 is shorted, adjust VR 202 so that the trailing point of IC 201 pin 5 (PB-H) is in the center of IC 302 pin 1's H section.	Memory WRITE PLL LOCK DC reset mode		
7	PLL gain adjustment	VR 204	Audio output terminal (L and R channels)	· During the playback of #2,701 (#2,701) on an eccentric LD test disc, adjust VR 204 to minimize the amplitude of the audio output terminal's waveform and to minimize the L and R level difference. · To make the LD eccentric, cover the disc's center hole with cellophane tape.	Cover the disc's center hole with cellophane tape to make the disc eccentric. Playback #2,701 (#2,701)	10 mV/div 5 msec/div	
8	Sync DC level adjustment	VR 302	Video output terminal	During playback of #2,701 (#2,701) on the LD test disc, refer to the video output terminal's signal with the oscilloscope's V rate and adjust VR 302 so that the pedestal difference becomes 0 ±20 mV.	#2,701 (#2,701) playback	200 mV/div 500 μsec/div V rate	
9	Video level adjustment	VR 102	Video output terminal	During still playback of #19,801 (#19,801) on the LD test disc, refer to the video signal waveform and adjust VR 102 so that the white amplitude from the pedestal becomes 0.75 Vp-p ±5%.	#19,801 (#19,801) still	50 mV/div 50 mV/div	
10	1 H delay video level adjustment	VR 103	IC 101 pins 40 and 42	During still playback of LD test disc frame #19,801 (#19,801), adjust VR 103 to equalize the amplitude from the video signal sync tip of IC 101 pins 40 and 42 to the white peak.	#19,801 (#19,801) still	50 mV/div 50 mV/div	
11	VPS error level adjustment	VR 104	Monitor screen	During still playback (magenta screen) of LD test disc frame #7,201 (#26,101), adjust VR 104 to minimize the color irregularity on the screen.	#7,201 (#26,101) still		
12	140 nsec adjustment	VR 301	IC 311 pin 11 IC 310 pin 7	Look at the waveforms for IC 311 pin 11 and IC 310 pin 7 and adjust VR 301 so that t 2 in the diagram becomes 140 nsec ±5 nsec for IC 311 pin 11's trailing edge.	#7,201 (#6,301) still		

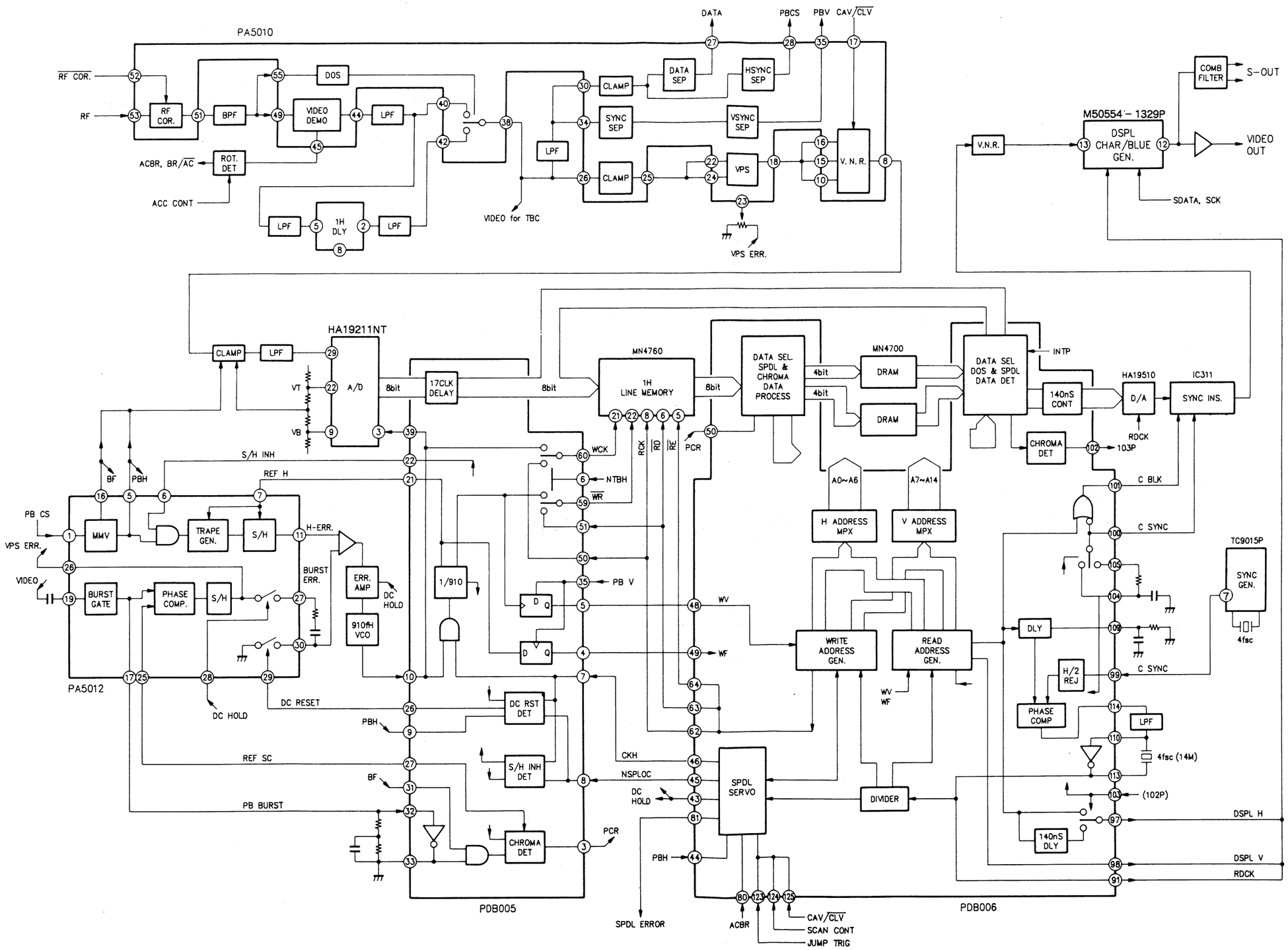
	Assembly Adjustment Name	Adjustment Point	Measurement Point	Adjustment Description	Player Condition	Oscilloscope	Remarks
	MAIN assembly						
1	Decoder clock adjustment	VC 201	IC 203 pin 3	In the test mode's 3 MHz oscillation mode, adjust VC201 so that IC 203 pin 3's frequency becomes 3 MHz ±0.1 MHz. (See page 94.)	Test mode's 3 MHz oscillation mode	Frequency counter	
2	LDD VCXO free run frequency adjustment	VR 101	IC 106 pin 23	Adjust VR 101 so that IC 106 pin 23's frequency becomes 8.6436 MHz ±400 Hz.	LDD disc playback	Frequency counter	
3	LDD PLL free run frequency adjustment	VL 101	IC 101 pin 7 C117's IC103 prong	Connect a 0.01 μF capacitor to the C 117's IC 103 prong. Connect the capacitor's other prong to GND. Playback the LDD and adjust VL 101 to equalize the IC 101 pin 7 voltage and the voltage when the capacitor is not connected to GND. (Voltage difference of ±0.2 V)	LDD disc playback	Oscilloscope	



● **ADJUSTMENT POINTS**

9. BLOCK DIAGRAM




PA5010
RF COR.
RF
ACBR, BR/AC
ACC CONT
RF COR.
BPF
DOS
VIDEO DEMO
LPF
ROT. DET
LPF
1H DLY
LPF
VIDEO for TBC
LPF
CLAMP
SYNC SEP
CLAMP
DATA SEP
HSYNC SEP
VSYNC SEP
VPS
V. N. R.
VPS ERR.
DATA
PBCS
PBV
CAV/CLV
V.N.R.
M50554-1329P
DSPL CHAR/BLUE GEN.
COMB FILTER
S-OUT
VIDEO OUT
SDATA, SCK
HA19211NT
CLAMP
LPF
A/D
VT
VB
8bit
17CLK DELAY
8bit
MN4760
1H LINE MEMORY
8bit
DATA SEL. SPDL & CHROMA DATA PROCESS
4bit
4bit
MN4700
DRAM
DRAM
DATA SEL DOS & SPDL DATA DET
INTP
140nS CONT
HA19510
D/A
IC311
SYNC INS.
RDCK
CHROMA DET
103P
C BLK
C SYNC
C SYNC
DLY
H/2 REJ
PHASE COMP
LPF
4fsc (14M)
(102P)
140nS DLY
DSPL H
DSPL V
RDCK
TC9015P
SYNC GEN.
4fsc
WCK
NTBH
WR
RCK
RD
RE
PCR
PB V
WV
WF
CKH
NSPLOC
DC HOLD
PBH
SPDL SERVO
SPDL ERROR
ACBR
CAV/CLV
SCAN CONT
JUMP TRIG
A0~A6
A7~A14
H ADDRESS MPX
V ADDRESS MPX
WRITE ADDRESS GEN.
READ ADDRESS GEN.
WV
WF
DIVIDER
PDB006
S/H INH
REF H
PB CS
VPS ERR.
VIDEO
BF
PBH
MMV
TRAPE GEN.
S/H
H-ERR.
BURST GATE
PHASE COMP.
S/H
BURST ERR.
ERR. AMP
DC HOLD
910fH VCO
1/910
D Q
D Q
PA5012
DC RESET
DC HOLD
DC RST DET
PBH
S/H INH DET
REF SC
BF
PB BURST
CHROMA DET
PCR
PDB005

10. FOR SD TYPE

10. 1 CONTRAST OF MISCELLANEOUS PARTS

NOTES :

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

The CLD-95/SD type is the same as the CLD-95/KU/CA type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		KU/CA type	SD type	
◉	PLFB assembly	VWR1097	VWR1096	
	TRSB assembly	.....	Non supply	
⚠	Power cord	VDG1046	VDG1047	
	Packing case	VHG1148	VHG1150	For Packing
	Instructions Manual		VRK1002	
⚠	Power transformer	VTT1093	VTT1094	
⚠	Voltage selector	.....	VSB1002	
	Front Aluminum assembly	VXA1619	VXA1624	
	Front panel assembly-S	VXX1571	VXX1570	

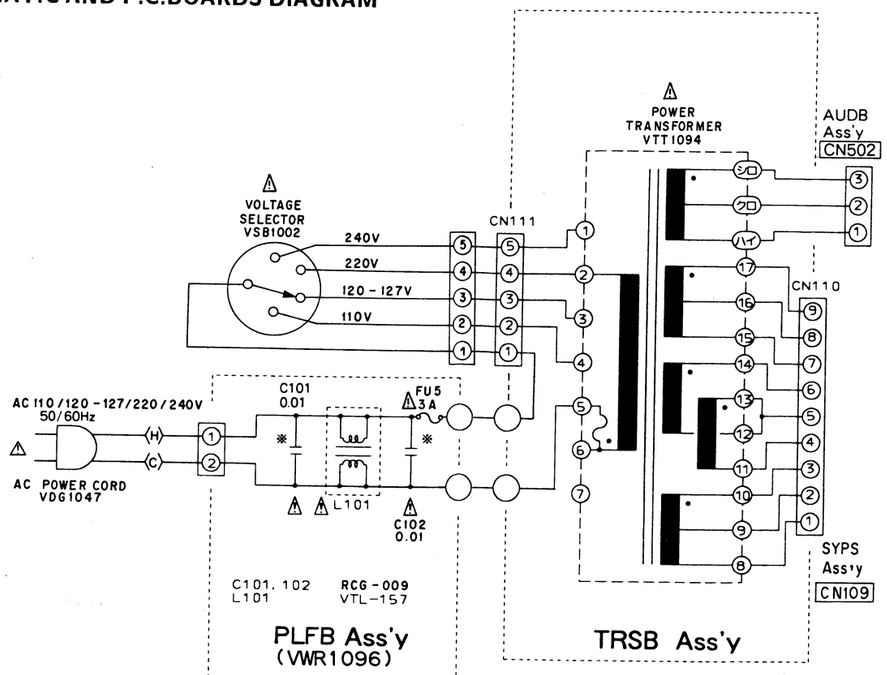
PLFB ASSEMBLY(VWR1096)

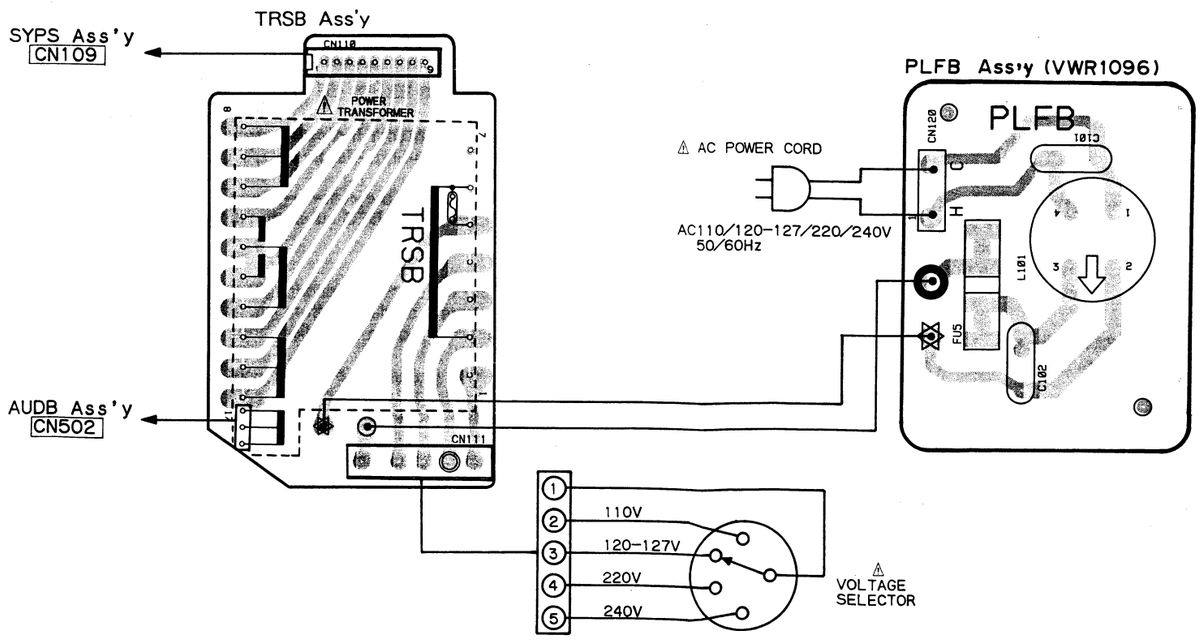
The PLFB assembly (VWR1096) is the same as the PLFB assembly (VWR1097) for the service supply parts.

TRSB ASSEMBLY

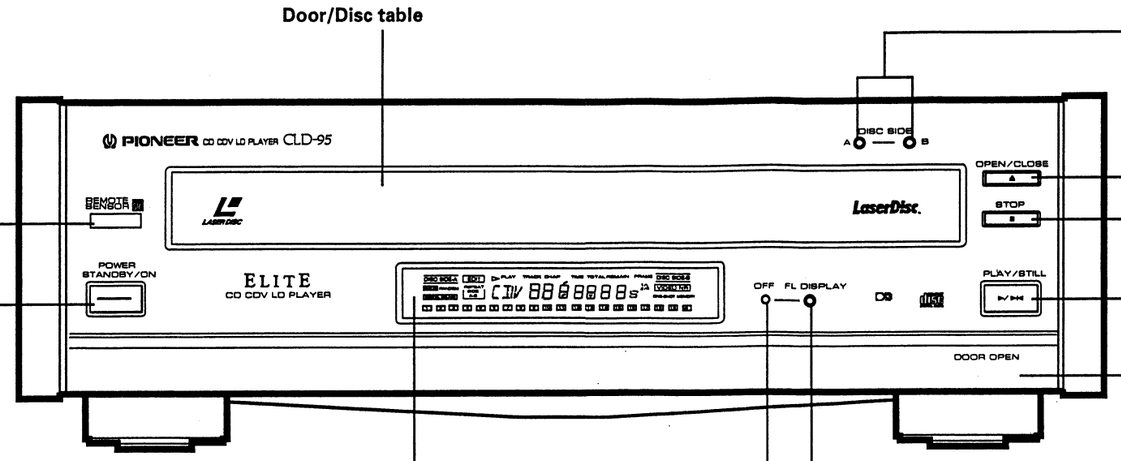
No electrical parts are supplied this assembly.

10.2 SCHEMATIC AND P.C.BOARDS DIAGRAM





11. PANEL FACILITIES



Door/Disc table

REMOTE SENSOR

POWER STANDBY/ON switch
Press to turn the power on and off.

DISC SIDE A/B buttons
When a two-sided LD is loaded, side A is the side with the label facing upward, and side B is the side with the label facing downward. Depending on how the LD is loaded, the A and B buttons may not correspond with the indications on the indications on the label (A, B or 1,2).

OPEN/CLOSE button

STOP button

PLAY/STILL button

Display window

FL DISPLAY button

FL DISPLAY OFF indicator
Lights when the display window and TV screen are turned off using the FL DISPLAY OFF button.

Play indicator
Lights when a disc is being played.

REPEAT indicator
Lights during repeat playback.

EDIT indicator
Lights during auto program editing.

RANDOM indicator
Lights during random playback.

SIDE A indicator

TRACK/CHAP indicator
Indicates the track number or chapter number.

TIME/TOTAL/REMAIN indicator
Indicates the elapsed time, remaining play time or total playing time.

FRAME indicator
Indicates the frame number.

1/L channel, 2/R cahnnel indicator
Indicates the audio output channel(s).

SIDE B indicator

Disc indicator
Indicates the type of disc loaded.

DIGITAL SOUND indicator
Lights when a disc with digital sound is played. Also lights when the digital signal is selected during LD playback.

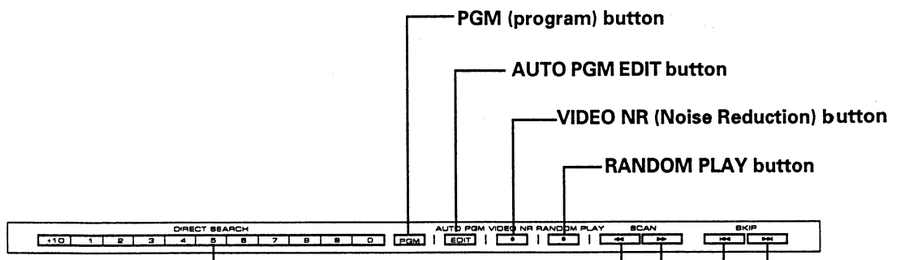
PGM indicator
Lights during program playback.

ONE -SHOT MEMORY indicator
Lights during One-Shot Memory playback.

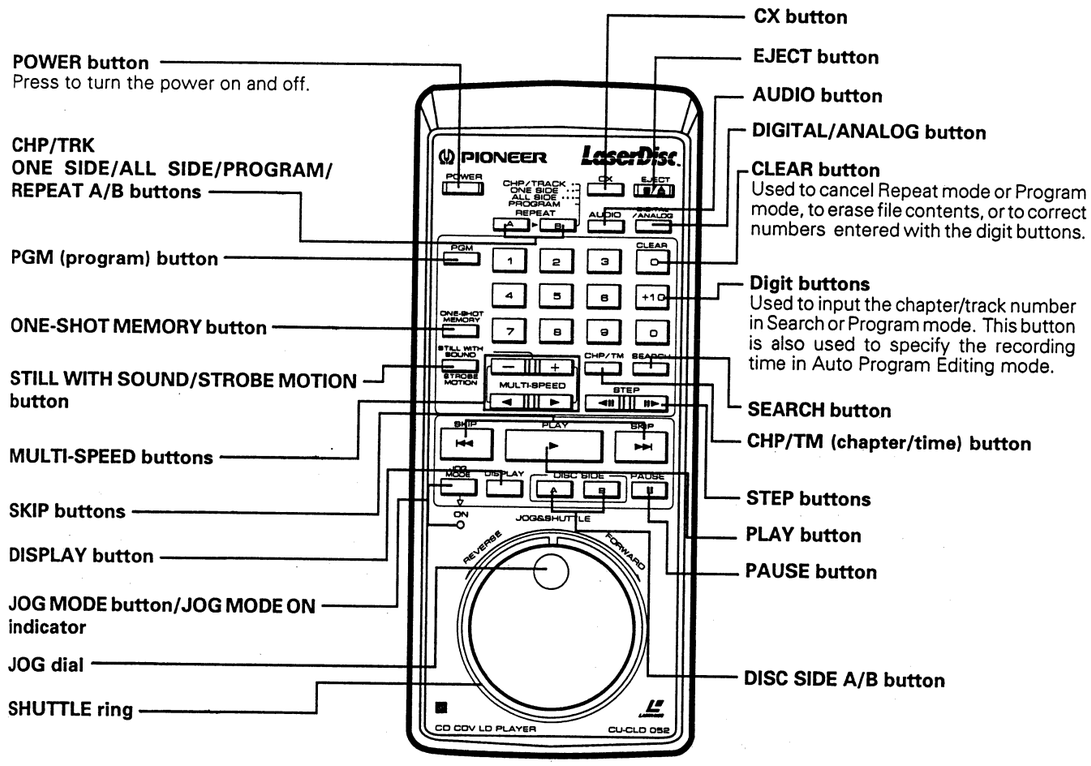
VIDEO NR indicator
Lights the VIDEO NR button is pressed.

LD CD/CDV visual calendar
When a disc is loaded, the numbers on this calendar light up to indicate the chapter/track numbers recorded on the disc. If 20 or more chapters/tracks are recorded on the disc, the "→" indicator lights.
During program play, only the programmed chapter/track numbers light. When a disc without a TOC (Table of Contents) section is loaded, only the number of the chapter currently being played lights.
When a CDV disc is loaded, the track numbers of the video part light followed by the track numbers of the audio part.
When a chapter or track finishes playing, the corresponding number is turned off on the display.

Control panel
The control panel can be opened by pushing on the section indicated by the "DOOR OPEN" label. To close the control panel, gently push the door in until it clicks.



Remote control buttons with the same names or marks as buttons on the front panel of the player control the same operations as the corresponding front panel buttons.



12. SPECIFICATIONS

1. General

System ..... LaserVision Disc system and Compact Disc digital aoudio system
Laser ..... Semiconductor laser wavelength 780 nm
Power requirements
U.S. and Canadian models ..... AC 120V, 60 Hz
Multi voltage model ..... AC 110V/120-127V/220V/240V (Switchable), 50/60 Hz
Power consumption 50W
Weight ..... 14.2 kg (31 lbs 5 oz)
Dimensions ..... 458 (W) x 439 (D) x 148 (H) mm
18-1/16 (W) x 17-5/16 (D) x 5-13/16 (H) in
Operating temperature ..... +5°C ~ +35°C (41°F - 95°F)
Operating humidity ..... 5% ~ 90%
(There should be no condensation of moisture.)

2. Disc

LaserVision Discs

*Maximum playing times
12-inch standard play disc ..... 1 hour/both sides
12-inch extended play disc ..... 2 hours/both sides
8-inch standard play disc ..... 28 min/both sides
14 min/one side
8-inch extended play disc ..... 40 min/both sides
20 min/one side
Spindle motor speed
Standard play disc ..... 1,800 rpm
Extended play disc ..... 1,800 rpm (inner circumference) to 600 rpm (outer circumference)
(For a 12-inch disc)

Compact Discs

DISC ..... Diameter: 5-inch, 3-inch, Thickness: 1.2 mm
Rotation direction (pickup side) ..... Counterclockwise
Liner speed ..... 1.2 ~ 1.4m/sec
*Maximum playing time
60 min. or more: 5-inch discs
20 min. or more: 3-inch discs
(For stereo playback)

Compact Discs with Video

Disc ..... Diameter: 5-inch, Thickness: 1.2 mm
Rotation direction (pickup side) ..... Counterclockwise
Linear speed ..... Audio portion: 1.2 ~ 1.4m/sec
Video portion: 11 ~ 12m/sec
Maximum playing time ..... Video portion: 5 min. (CLV)
Audio portion: 20 min. (Digital)

** Actual playback time differs for each disc.*

3. Video characteristics (2 pairs)

Format ..... NTSC spefifications
Video output
Level ..... 1 Vp-p nominal, sync. negative, terminated
Impedance ..... 75 Ω unbalanced
Jack ..... RCA jack

4. S-Video output (2 pairs)

Y (luminance) - Output level ..... 1 Vp-p (75 Ω)
C (color) - Output level ..... 286 mVp-p (75 Ω)
Jack ..... S-VIDEO jack

5. Other Terminals

Control imput/output ..... Both miniature jacks
Optical digital output ..... Optical digital jack

6. Audio characteristics (2 pairs)

Output level
During analog audio output ..... 200 mVrms (1 kHz, 40%)
During digital audio output ..... 200 mVrms (1 kHz, –20 dB)
Jacks ..... Both RCA jacks
Number of channels 2

Digital Audio Characteristics

Frequency response	4 Hz - 20 kHz (±0.2dB) (EIAJ)
SN ratio	115 dB (EIAJ)
Dynamic range	99 dB (EIAJ)
Channel separation	105 dB (EIAJ)
Total harmonic distortion	0.0017% (EIAJ)
Wow and flutter	Limit of measurement (0.001% W. PEAK) or less (EIAJ)

7. Accessories

Remote control unit (CU-CLD052) 1
Size "AAA" (IEC R03) dry cell batteries 2
S video cord 1
Video cord 1
Audio cord 1
Operating instructions 1
Warranty card 1

Player Functions

- Display ON/OFF, Visual Calender Display
- Random Play, Auto Program Edit
- Display ON/OFF
- Video NR
- Last Memory
- correspond to LD with digital audio

NOTE:
The specifications and design of this product are subject to change without notice, due to improvement.